

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30

Draft Fact Sheet

Draft Fact Sheet for National Pollutant Discharge Elimination System (NPDES) and State Waste discharge General Permit for Discharges from Large and Medium Municipal Separate Storm Sewers

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

March 22, 2006

Table of Contents

I.	INTRODUCTION	3
II	PUBLIC INVOLVEMENT OPPORTUNITIES	3
	Public Comment Period	3
	Public Involvement Opportunities Prior to February 15, 2006.....	5
III.	BACKGROUND	7
	The Stormwater Problem	7
	Laws and Regulations	14
IV.	DIFFERENCES BETWEEN THE 1995 PERMITS AND THIS PERMIT	16
V.	RELATIONSHIP TO OTHER STORMWATER NPDES PERMITS.....	17
VI.	EXPLANATION OF PERMIT CONDITIONS	19
	Summary	19
	S1 - Permit Coverage and Permittees	21
	S2 - Authorized Discharges	
	S3 - Responsibilities of Permittees, Co-Permittees and Secondary Permittees	23
	S4 - Compliance with Standards	23
	S5 - Stormwater Management Program.....	27
	S6 - Stormwater Management Program for Co-Permittees and Secondary Permittees.....	41
	S7 - Total Maximum Daily Load Allocations	46
	S8 - Monitoring.....	48
	S9 - Reporting Requirements.....	55
	General Conditions	57
APPENDICES TO THE DRAFT FACT SHEET		
A.	List of potential Secondary Permittees in Western Washington	
B.	Complete list of applicable TMDLs in Western Washington	
C.	Monitoring program cost estimate	
D.	Response to Comments (will be added to Final Fact Sheet)	

I. INTRODUCTION

This Fact Sheet accompanies the final draft *NPDES and State Waste Discharge Permit for Discharges from Large and Medium Municipal Separate Storm Sewers* (the Phase I Permit). The Fact Sheet serves as the documentation of the legal, technical, and administrative decisions the Department of Ecology (Ecology) has made in the process of developing and issuing this permit.

When issued, this permit will authorize the discharge of stormwater to waters of the State of Washington from municipal separate storm sewers that are owned or operated by the Permittees. As required by paragraph 402(p)(3) of the Clean Water Act, discharges covered under this permit must effectively prohibit non-stormwater discharges into storm sewers that discharge to surface waters and must apply controls to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP). As authorized by RCW 90.48.030 and RCW 90.48.162, Ecology is also taking action through the issuance of this permit to control impacts of stormwater discharges to all waters of Washington State, including ground waters, unless the discharges are authorized by another regulatory program.

Discharges from agricultural runoff, irrigation return flows, process and non-process wastewaters from industrial activities, and stormwater runoff from areas served by combined sewer systems are not regulated directly by this permit. These types of discharges may be regulated by local or other state requirements if they discharge to municipal separate storm sewers. This permit authorizes the municipal separate storm sewer to discharges stormwater that comes from construction sites or industrial activities under certain conditions.

II. PUBLIC INVOLVEMENT OPPORTUNITIES

PUBLIC COMMENT PERIOD

Ecology is soliciting public comment on the Draft Permit, Fact Sheet, and Notice of Intent until 5:00 p.m. on May 19, 2006. Ecology welcomes all comments on these formal draft documents. If possible, the following information should be included with your comments:

- The specific language in the permit that is the subject of the comment. Please include the page number and, where indicated, the line number.
- The basis for the comment, and in particular the legal, technical, administrative, or other basis for the concern.
- A suggested alternative to address the concern.

Ecology will issue the final permit after it considers all public comments and makes final changes to the draft permit.

Written comments should be sent to Phase1Comments@ecy.wa.gov or to:

Municipal Stormwater Phase I Comment
WA Department of Ecology
Water Quality Program

1 PO Box 47696
2 Olympia, WA 98504-7696
3

4 Oral comments can be made by attending and testifying at the public hearing:

5 **Tuesday, May 2, 2006 1pm**
6 **Tacoma**
7 Pierce County Library Administrative Center
8 3005 112th Street East

9 The hearing will provide the public with an opportunity to give formal comments on the
10 proposed permit. A short workshop with a question and answer session will precede the
11 hearing.
12

13 Ecology will host four general public workshops on the Draft Permit during the public
14 comment period. The purpose of the workshops is to explain the permit, to inform
15 participants of how this draft of the permit has changed from the previous draft of the
16 permit, and to answer questions. Ecology will not accept formal oral testimony or
17 comments on the Draft Permit, Fact Sheet, or Notice of Intent at the public workshops.
18 The public workshops on the Draft Permit will be held at the following locations, dates
19 and times:
20

Phase I and Phase II Western Washington General Workshops	
Date & Time:	Location:
Friday, March 31, 2006 10 am – 4 pm	Mount Vernon Skagit PUD #1 1415 Freeway Drive
Tuesday, April 4, 2006 10 am – 4 pm	Tacoma Pierce County Library Admin. Center 3005 112 Street E
Tuesday, April 11, 2006 10 am – 4 pm	Vancouver Water Resources Education Center Bruce Hagensen Community Room 4600 SE Columbia Way
Tuesday, April 18, 2006 10 am – 3:30 pm	Bellevue Lewis Creek Park Visitor Center 5808 Lakemont Blvd

21
22 Ecology will also hold two public workshops specifically for the public entities who are
23 not cities, towns, or counties that may also be required to obtain coverage under this
24 permit. The list of Secondary Permittees who were sent notice of the availability of the
25 draft permit and the workshops are listed in Appendix A to this Fact sheet. Ecology will
26 not accept formal oral testimony or comments on the Draft Permit, Fact Sheet, or Notice
27

of Intent at these workshops. The purpose of the workshops is to explain the general permit, to go through the stormwater management program requirements for these entities, and to answer questions. The public workshops for these entities will be held at the following locations, dates, and times:

Secondary Permittee Workshops	
Date & Time	Location
Tuesday, March 14, 2006 1 pm – 5 pm	Ellensburg Hal Holmes Community Center 209 North Ruby Street
Tuesday, March 28, 2006 1 pm – 5 pm	Lacey Lacey Community Center 6729 Pacific Ave SE

Ecology will issue the final permit after receiving and considering all public comments. If public comments cause a substantial change in the permit conditions from the final draft permit, another public notice of draft and comment period may ensue. Ecology expects to issue the final permits in the fall of 2006 and they will become effective 30 days after issuance. A copy of the Notice of Issuance will be sent to all persons who submitted written comment or gave public testimony at the public hearings.

When Ecology issues the final permit, the summary and response to comments will become part of the file on the permit and parties submitting comments will receive a notice on how to obtain copies of the final permit and Ecology's response to comments. Comments and the resultant changes to the proposed permit will be summarized in an Appendix D to this Fact Sheet - Response to Comments.

You may download copies of the draft permit documents and submit comments online at: http://www.ecy.wa.gov/programs/wq/stormwater/municipal/issue_permits.html.

Direct questions about the **workshops** and requests for printed copies of the Draft Permit, Fact Sheet, and Notice of Intent to section secretaries Melinda Wilson at mewi461@ecy.wa.gov or Julie Robertson at jrob461@ecy.wa.gov or telephone either of them at (360) 407-6401.

Questions about the **Notice of Intent**, the **Draft Permit** or **Fact Sheet** should be directed to Ann Wessel at (360) 407-6457 or awes461@ecy.wa.gov.

Public Involvement Opportunities Prior to February 15, 2006

On January 19, 1999 Ecology filed a Notice of Intent to reissue the NPDES and State Waster discharge general permits for discharges from large and medium MS4s. An advisory committee including representatives from Phase I and Phase II cities and

1 counties, state and federal agencies, environmental groups, and the public was formed to
2 assist Ecology with developing the revised permit. The advisory committee met 7 times
3 from June 1999 until June 2001 to provide input and discuss draft permit language.

4
5 Concurrent with the advisory committee process for developing the draft Phase I permit,
6 Ecology participated in the stormwater portion of the Tri-County Endangered Species
7 Act (ESA) response process. The Tri-County Model Conservation Program began in
8 1998 and brought together local governments, environmental groups, and businesses in
9 Snohomish, King, and Pierce Counties to address the habitat-related factors of salmon
10 decline. Recognizing the significant overlap between the CWA and ESA requirements to
11 protect water quality, participants in the Tri-County process worked to develop consistent
12 stormwater management requirements where possible.

13
14 Substantial progress was made in developing a revised Phase I permit through the early
15 advisory committee and Tri-County processes, however, in 2002 Ecology decided to
16 postpone reissuance of the Phase I permit. Resources were shifted towards a state wide
17 permit for WSDOT, and the new EPA requirements for Phase II municipal stormwater
18 permits.

19
20 In response to legislative interest in the Phase II municipal stormwater permits, Ecology
21 convened the Eastside and Westside stormwater advisory groups during the summer of
22 2003 to advise and assist the development of the municipal stormwater permits. Phase I
23 permittees participated in the Westside Stormwater group.

24
25 The Westside Stormwater Group (WSG) included representatives from local
26 governments, state agencies, the environmental community, business, agriculture and the
27 shellfish industry. The WSG met seven times from August to November 2003 and
28 submitted a report on its findings to Ecology in early December, 2003. The WSG did not
29 reach consensus on any specific issue but recommended a variety of administrative, legal,
30 financial, and environmental considerations associated with alternative approaches to
31 permitting. The recommendations of the WSG, the Eastside stormwater advisory group,
32 and recommendations from Ecology were all jointly published in a report to the State
33 Legislature dated January 2004. The report is available at:

34 <http://www.ecy.wa.gov/biblio/0410010.html>.

35 Ecology filed a Notice of Intent to issue the Phase I and Western Washington Phase II
36 and the Washington Department of Transportation (WSDOT) municipal stormwater
37 general NPDES permits in the State Register on June 22, 2004 (WSR 04-13-126). In
38 accordance with Washington's Waste Discharge General Permit regulation, WAC 173-
39 226-130, the announcement:

- 40
41 1. Provided notice of a preliminary determination to develop general permits,
42 2. Requested comments as to whether a general permit or individual permits would
43 be more appropriate for such discharges, and
44 3. Provided an opportunity for interested or potentially affected parties to submit
45 information on dischargers and discharges proposed to be covered under the
46 permit as well as any other relevant information.

Ecology posted preliminary drafts of the Phase I and Phase II Municipal Stormwater Permits for Western Washington for public comment from May 16, 2005 through August 19, 2005, and the preliminary draft of the WSDOT permit from December 19, 2005 through February 21, 2006. The Phase I and II preliminary drafts invited comment on several topics in anticipation that the drafts would change. Ecology provided workshops in Tacoma, Everett, Bothell and Vancouver during this period to explain and compare the permits and answer questions. Ecology reviewed and considered comments received as late as November 14, 2005 nearly three months after the close of the comment period in the development of the Draft Permits.

Ecology received over a thousand pages of comments on the Western Washington Phase I and Phase II Stormwater Preliminary Draft Permits from associations, cities, counties, private organizations, ports, drainage districts and state, federal and tribal governments. All public comments received by Ecology on the Preliminary Drafts have been made available online. Ecology has considered those comments and made multiple changes to the Final Draft Permit.

III. BACKGROUND

The Stormwater Problem

Stormwater is the leading contributor to water quality pollution in our urban waterways. As urban areas grow, stormwater is also Washington's fastest growing water quality problem. Pollutants in or resulting from stormwater can cause a wide range of impacts. Some pollutants such as metals, oil and grease, and organic toxins are toxic to aquatic organisms if concentrations are high enough. Sediments cause tissue abrasion and gill clogging in fish, they reduce light and impair algal growth, they smother fish spawning habitat and are transporters of other pollutants. Nutrients accelerate eutrophication of lakes and ponds resulting in nuisance algal blooms, reduced clarity, odors and reduced drinking water quality. Temperature sensitive fish and invertebrates cannot survive in overly warm water bodies.

In addition, the large impervious surfaces in urban areas increase the quantity and peak flows of runoff, which in turn cause hydrologic impacts such as scoured streambed channels, in-stream sedimentation and loss of habitat. Furthermore, because of the volume of runoff discharges, mass loads of pollutants in stormwater can be significant.

Impacts from stormwater are highly site-specific and vary geographically due to differences in local land use conditions, hydrologic conditions, and the type of receiving water. The following is a list of typical impacts caused by stormwater discharges:

- **Human Health:** In general, untreated stormwater is unsafe. It contains toxic metals, organic compounds, and bacteria. Untreated stormwater is not safe for people to drink, and is not recommended for swimming.

- **Salmon Habitat:** In western Washington urban stormwater impairs streams that provide salmon habitat. Paved surfaces cause higher winter stormwater flows that erode stream channels, destroying spawning beds. Also, because more water flows away during the wet season, streams can lose summertime base flows, drying out habitat needed for salmon rearing. Over the past few years surveys of spawning adult Coho salmon in Seattle and Bellevue found that very high percentages of adult females (up to 90 percent) are dying before they spawn. Coho rely on runoff from the first significant rainfall events in the fall to move upstream. Although the precise causes of these acute die-offs are not yet known, stormwater pollution is likely to be involved. The problem is under active scientific investigation, and it appears to be widespread throughout urban streams in Puget Sound.¹
- **Drinking Water:** In some areas of Washington, notably Spokane County, and parts of Pierce and Clark counties, gravelly soils allow rapid infiltration of stormwater. Untreated stormwater discharging to the ground could contaminate aquifers that are used for drinking water.
- **Shellfish Industry:** The State's multimillion shellfish industry is increasingly threatened by closures due to stormwater.
- **Degraded Water Bodies:** Across Washington State, probably without exception, stream channels in urban and urbanizing areas have been drastically altered by changes in land cover resulting from residential, commercial and industrial land development. Fish resources, and other beneficial uses, have been and will continue to be severely degraded, and in many cases permanently lost, due to the impacts of urban land development.

There are many pollution sources that contaminate stormwater, including land use activities, operation and maintenance activities, illicit discharges and spills, atmospheric deposition, and vehicular traffic conditions. Many of these sources are not under the direct control of the permittees that own or operate the storm sewers.

Common Pollutants in Stormwater and Some Potential Sources²

Pollutant	Potential Sources
Lead	Motor Oil, Transmission Bearings, Gasoline ³
Zinc	Motor Oil, Galvanized Roofing, Tire Wear, Down Spouts

¹ Personal communication: Jamie Glasgow, Washington Trout, and Nathaniel Scholz, NOAA Fisheries, 2003.

² Adapted from a number of sources: Novotny, V. and G. Chesters, 1981. *Handbook of Nonpoint Pollution*. Van Nostrand Reinhold Company, New York, p. 322. Galvin D. and R. Moore, 1982. *Toxicants in Urban Runoff*. METRO Toxicant Program, Report #2. METRO, Seattle, pp 3-89 - 3-92. PTI Environmental Services, 1991. *Pollutants of concern in Puget Sound*. Puget Sound Estuary Program, U.S. EPA, Seattle, pp 47-51. URS et al, 1988. City of Puyallup, Stormwater Management Program. *Technical Memorandum WQ-1: Stormwater Quality Issues*. Table 1.

³ Although lead is no longer an additive to gasoline, it is still present in trace amounts and remaining lead on the ground is picked up by stormwater runoff.

Cadmium	Tire Wear, Metal Plating, Batteries
Copper	Brake Linings, Thrust Bearings, Bushings
Chromium	Metal Plating, Rocker Arms, Crank Shafts, Brake Linings, Yellow Lane Strip Paint
Arsenic	ASARCO Smelter, Fossil Fuel Combustion
Bacterial/Viral Agents	Domestic Animals, Septic Systems, Animal & Manure Transport
Oil & Grease	Motor Vehicles, Illegal Disposal of Used Oil
Organic Toxins	Pesticides, Combustion Products, Petroleum Products, Paints & Preservatives, Plasticizers, Solvents
Sediments	Construction Sites, Stream Channel Erosion, Poorly Vegetated Lands, Slope Failure, Vehicular Deposition
Nutrients	Sediments, Fertilizers, Domestic Animals, Septic Systems, Vegetative Matter
Heat	Pavement Runoff, Loss of Shading Along Streams
Oxygen Demanding Organics	Vegetative Matter, Petroleum Products

Characterization of Stormwater

Hydraulic impacts and the characterization of pollutants vary but can be generalized by land uses such as residential, commercial, industrial and open space.⁴ In general, the wet season's first flush rains carry the most pollutants to receiving waters and the wettest months are October through May. For the geographic areas covered by the permit, data taken from 1948 to 1986 show an average range between 80 and 100 storm events per year with storm events defined as precipitation greater than .1 inches/day⁵. In addition, the following 18-year (1980 – 1997) average annual precipitation rates are noted:

Table 3: Average annual precipitation for permitted areas in western Washington

Urban Area of Coverage	Average Annual Precipitation*
Bellingham Urban Area	36 inches
Bremerton Urban Area	52 inches
Longview/Kelso Urban Area	46 inches
Marysville Urban Area (Everett data used)	37 inches
Mount Vernon Urban Area	32 inches
Olympia/Lacey Urban Area	51 inches
Seattle Urban Area	35 – 39 inches
Everett Urban Area	37 inches
Tacoma Urban Area	37 – 39 inches

⁴ Pitt et al 2004, *The National Stormwater Quality Database*, <http://www.cwp.org>

⁵ Perrich, Jerry P.E. 1992. *ESE National Precipitation Databook*, Cahners Pub.

Vancouver Urban Area	39 inches
----------------------	-----------

*Source: Western Regional Climate Center, wrcc@dri.edu

Data characterizing the quality of stormwater discharges has been collected and analyzed in Oregon. The rainfall patterns and land cover characteristics in Oregon are sufficiently similar to Washington to provide an indication of the general quality of stormwater discharges in Washington. The following table shows the mean of the “event mean concentrations” (EMCs) of common stormwater pollutants for different land use categories.⁶ The EMC is defined as the total constituent mass discharge divided by the total runoff volume. EMCs are typically based on flow weighted composite samples. Total phosphorus is presented for comparative purposes only, since phosphorous concentrations were not found to be consistent among similar land use stations. Total phosphorous concentrations may be more affected by soil type than by land use.

Oregon Urban Runoff Water Quality Data Land Uses Mean Concentrations for Selected Pollutants					
Land Use	TSS mg/l	Total Cu mg/l	Total Zn mg/l	Dissolved Cu mg/l	Total P mg/l
In-pipe Industrial	194	0.053	0.629	0.009	0.633
Instream Industrial	102	0.024	0.274	0.007	0.509
Transportation	169	0.035	0.236	0.008	0.376
Commercial	92	0.032	0.168	0.009	0.391
Residential	64	0.014	0.108	0.006	0.365
Open	58	0.004	0.025	0.004	0.166

Another important source of information about stormwater quality is the National Stormwater Quality Database (NSQD).⁷ The NSQD collected and evaluated data from a representative number of municipal stormwater permit holders. To date it is the largest urban stormwater database ever developed.

Notable observations from the NSQD include the following:

- Preliminary statistical analyses found significant differences among land use categories for all pollutants. This is notable because National Urban Runoff Program (NURP) findings showed no significant differences in urban runoff concentrations as a function of common urban land uses (EPA, 1983).
- Freeway locations generally had the highest median values, except for phosphorus, nitrates, fecal coliforms, and zinc.
- The industrial sites had the highest reported zinc concentrations.

⁶ Strecker et al. 1997. *Analysis of Oregon Urban Runoff Water Quality Monitoring Data Collected from 1990 to 1996*, prepared for the Oregon Association of Clean Water Agencies, Table 3-2.

⁷ Pitt et al 2004, *The National Stormwater Quality Database*,
http://www.cwp.org/NPDES_research_report.pdf

- The Total Kjeldahl Nitrogen (TKN), copper, lead, and zinc observations are lowest for open space areas.
- Lead concentrations, as expected, have dropped by an order of magnitude over the last 20 years, largely assumed to be the result of instituting unleaded gasoline regulations.
- Sediment and heavy metal concentrations appear to have declined across all land uses. Further analysis is required to determine whether the decline is statistically significant. Reasons for the decline maybe related to sample collection locations.
- Nutrient concentrations are relatively similar between the two data sets (NSQD and NURP).

The following tables from the NSQD are provided to give an indication of the general quality of stormwater discharges for a broader range of parameters than the Oregon data set.

MEDIAN Values and EMCs for Selected Parameters in the NSQD, Version 1.0						
Parameter	Overall	Residential	Commercial	Industrial	Freeways	Open Space
Area (acres)	56	57.3	38.8	39	1.6	73.5
% Imperv.	54.3	37	83	75	80	2
Precip. Depth (in)	0.47	0.46	0.39	0.49	0.54	0.48
TSS (mg/L)	58	48	43	77	99	51
BOD5 (mg/L)	8.6	9	11.9	9	8	4.2
COD (mg/L)	53	55	63	60	100	21
Fecal Coliform (mpn/100 mL)	5081	7750	4500	2500	1700	3100
NH3 (mg/L)	0.44	0.31	0.5	0.5	1.07	0.3
N02+N03 (mg/L)	0.6	0.6	0.6	0.7	0.3	0.6
Nitrogen, Total Kjeldahl (mg/L)	1.4	1.4	1.6	1.4	2	0.6
Phos., filtered (mg/L)	0.12	0.17	0.11	0.11	0.2	0.08
Phos., total (mg/L)	0.27	0.3	0.22	0.26	0.25	0.25
Cd, total (ug/L)	1	0.5	0.9	2	1	0.5
Cd, filtered (ug/L)	0.5	ND	0.3	0.6	0.68	ND
Cu, total (ug/L)	16	12	17	22	35	5.3
Cu, filtered (ug/L)	8	7	7.6	8	10.9	ND

Pb, total (ug/L)	16	12	18	25	25	5
Pb, filtered (ug/L)	3	3	5	5	1.8	ND
Ni, total (ug/l)	8	5.4	7	16	9	ND
Ni, filtered (ug/L)	4	2	3	5	4	ND
Zn, total (ug/L)	116	73	150	210	200	39
Zn, filtered (ug/L)	52	33	59	112	51	ND
<i>ND = not detected, or insufficient data to present as a median value.</i>						

Summary of Selected Organic Information								
	Methylene - chloride (ug/L)	Bis (2-ethylhexyl) phthalate (ug/L)	Di-n-butyl phthalate (ug/L)	Fluor-anthene (ug/L)	Phen-anthrene (ug/L)	Pyrene (ug/L)	Diazinon (ug/L)	2, 4-D (ug/L)
Number of observations	251	250	93	259	233	249	79	101
% of samples above detection	36	30	16	19	13	14	22	35
Median of detected values	11.2	9.5	0.8	6	3.95	5.2	0.06	3
Coefficient of variation	0.77	1.13	1.03	1.31	1.00	1.24	1.9	0.86

Controlling Stormwater Discharges

Stormwater quality is difficult to manage because discharges are not continuous, highly predictable events. Rather, discharges are intermittent and weather-dependent in nature (i.e., rainfall and snowmelt). There is a wide range of pollutants in stormwater, and concentrations vary depending on storm events. Further difficulty in controlling municipal stormwater discharges comes from the large number of outfalls where stormwater is being discharged (hundreds or even thousands of outfalls within a city are typical). These features of stormwater runoff make it difficult to apply conventional end-of-pipe treatment options to existing discharges.

1 Three basic control strategies exist for stormwater. First, prevent pollutants from coming
2 into contact with stormwater by using source control best management practices (BMPs).
3 Second apply treatment BMPs prior to discharge to surface or ground waters to reduce
4 pollutants in the discharge. Third, control the flow rate of stormwater through flow
5 control BMPs.

6
7 Source control BMPs include activities as diverse as changing vehicle and equipment
8 maintenance activities to prevent the leaking of oil or other fluids; landscape design,
9 installation, and maintenance to minimize stormwater runoff; product replacement or
10 substitution (e.g., replace galvanized downspouts that are sources of zinc contamination
11 with downspouts that are coated with non-polluting materials); land use zoning to reduce
12 the intensity or character of urbanization in sensitive watersheds; minimizing the
13 removal of forests and native vegetation; covering up materials that are stored outside
14 and exposed to rainfall and runoff; and prohibiting or restricting the use of certain
15 chemicals that are causing a pollution problem (e.g., pesticides or phosphorus in
16 watersheds that drain to lakes). Source control BMPs can be very effective in preventing
17 stormwater contamination.

18
19 Treatment BMPs include ponds, swales, filtration, and infiltration devices that are
20 designed to capture runoff and treat it using physical, biological, and/or chemical
21 processes. The effectiveness and feasibility of treatment BMPs is variable, subject to
22 some debate, and much remains to be learned.

23
24 Flow control BMPs are usually detention (controlled release rates) or retention
25 (infiltration to the ground) ponds. Flow control is necessary to prevent accelerated
26 stream channel erosion or to protect wetlands from changes in water elevations.

27
28 In summary, the complexity inherent in stormwater discharges and the difficulty of
29 controlling such discharges means that it will take many years to fully implement a
30 program which adequately mitigates or prevents their adverse environmental impacts.

31 32 Limitations of the Permit in Protecting Water Quality

33
34 In developing this permit, Ecology recognizes that permits alone cannot prevent all
35 stormwater impacts and preserve natural resources and their associated beneficial uses.
36 For multiple reasons, the cumulative impact of unregulated stormwater will continue to
37 contribute to water quality degradation.

38
39 Ecology is required to implement the federal Clean Water Act and state Water Pollution
40 Control Act. Ecology has developed this draft permit within the framework created by
41 these statutes and has described a Stormwater Management Program designed to meet
42 state and federal requirements. In this Fact Sheet, Ecology has documented the rationale
43 for many of the proposed permit requirements. The permit does not address all urban
44 stormwater management needs and will not prevent all stormwater impacts. Citizens and
45 state and local governments will need to work together to implement other actions to
46 protect our water bodies.

Laws and Regulations

Federal Clean Water Act

The federal Clean Water Act (CWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the CWA is the National Pollutant Discharge Elimination System (NPDES) permitting program. In Washington, the department of Ecology has been delegated authority to administer the NPDES permit program for most dischargers including most municipal stormwater discharges. Chapter 90.48 RCW defines Ecology's authority and obligations in administering the NPDES permit program.

Amendments to the Clean Water Act in 1987 established new statutory requirements to control industrial and municipal stormwater discharges to waters of the United States. Waters of the United States include most surface water bodies and ground waters that are hydrologically connected to surface waters (See discussion in this Fact Sheet under Special Condition S2 - Authorized Discharges). Municipalities with separate storm sewers serving populations of 100,000 or greater are required to have a National Pollutant Discharge Elimination System (NPDES) permit to discharge stormwater. Municipalities with populations of 250,000 or more are defined as "large" while those with populations between 100,000 and 250,000 are defined as "medium" municipalities. Under the Act the permit requirements for discharges from municipal separate storm sewer systems are:

“Municipal Discharge. – Permits for discharges from municipal storm sewers -
(i) may be issued on a system- or jurisdiction-wide basis;
(ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and
(iii) shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.” (33 U.S.C. §1342 (p)(3)(B))

For municipal stormwater discharges, Congress phased in the NPDES permitting requirements. Phase I included medium and large municipalities. Municipalities with populations of 250,000 or more are defined as "large" while those with populations between 100,000 and 250,000 are defined as "medium" municipalities. In 1990 the EPA promulgated the phase I regulations.

In the 1987 CWA amendments Congress directed EPA to study remaining sources of stormwater discharges and propose regulations, based on the study, to designate and control other stormwater sources. These regulations which are commonly known as the phase II stormwater regulations were adopted by the EPA in December 1999. The Phase

1 II rule extends coverage of the (NPDES) program to certain “small” municipal separate
2 stormwater sewer systems (MS4s).

4 EPA Rules

5 U.S. EPA implementing regulations define the term "municipality" to mean incorporated
6 cities and unincorporated counties that have sufficient population in a Census Bureau
7 designated urbanized area to meet the population thresholds. In addition, other public
8 entities (excluding incorporated cities) regardless of their size, that own and operate
9 storm sewer systems located within the municipalities that meet the population thresholds
10 are also required to be covered under the permit program. Examples of other publicly-
11 owned storm sewer systems include state highway systems, ports, drainage districts, and
12 flood control districts located within named municipalities.

13
14 Recognizing the complexity of controlling stormwater, Congress and the U.S. EPA have
15 established a regulatory framework for municipal stormwater discharges that is very
16 different from traditional NPDES permit programs. Some of the key provisions of the
17 stormwater rule that reflect these differences are:

- 18
19 • Permits are to require the implementation of stormwater management programs
20 rather than establishing numeric effluent standards for stormwater discharges (40
21 CFR 122.26(d)(2)(iv)).
- 22 • Permits are to cover a large geographic area rather than individual "facilities."
23 Within a permit coverage area there will be hundreds or even thousands of
24 individual outfalls discharging stormwater (40 CFR 122.26(a)(3)).
- 25 • Flexibility that allows permittees to first focus their resources on the highest
26 priority problems (40 CFR 122.26(d)(2)(iv)).
- 27 • A watershed approach is allowed, even encouraged, to comprehensively manage
28 stormwater (40 CFR 122.26(a)(3) & (d)(2)(iv)).
- 29 • Pollution prevention is emphasized with some provisions requiring eliminating or
30 controlling pollutants at their source and by requiring permittees to assess
31 potential future impacts due to population growth and other factors (40 CFR
32 122.26(d)(2)(iv)(B) & (d)(1)(iii)).

33
34 EPA rules for discharges from large and medium MS4s establish a two part application
35 process, but did not establish actual permit requirements. EPA deliberately allowed the
36 permitting authority flexibility to establish permit requirements that are appropriate for
37 the local area under regulation.

38 39 Chapter 90.48 Revised Code of Washington (RCW) - The Water Pollution Control Act 40 and Implementing Regulations

41
42 Along with requirements in federal law, there are state law requirements for the control
43 of pollution. RCW 90.48.010 establishes “the public policy of the state of Washington
44 (is) to maintain the highest possible standards to insure the purity of all waters of the state
45 consistent with public health and public enjoyment thereof, the propagation and
46 protection of wild life, birds, game, fish and other aquatic life, and the industrial

1 development of the state, and to that end require the use of all known available and
2 reasonable methods by industries and others to prevent and control the pollution of the
3 waters of the state of Washington.”
4

5 Both the terms “pollution” and “waters of the state” are defined in RCW 90.48.020. The
6 term “all known available and reasonable methods” is not defined in state law and has
7 been left up to Ecology to define.
8

9 Under State Law, a permit is required to discharge pollutants or waste materials to waters
10 of the state (RCW 90.48.162). An application is required to obtain a discharge permit,
11 and Ecology has an obligation to investigate the application and determine whether the
12 use of public waters for the waste disposal will pollute state waters in violation of the
13 public policy of the state (RCW 90.48.170). A discharge permit must be issued unless
14 Ecology finds the disposal of waste materials will pollute the waters of the state in
15 violation of the public policy (RCW 90.48.180).
16

17 In 1987 the State Legislature passed into law RCW 90.48.520. When issuing or
18 renewing state and federal wastewater discharge permits Ecology is required to review
19 the applicant's operations and incorporate permit conditions which require all known,
20 available, and reasonable methods to control toxicants in the applicant's wastewater. The
21 discharge of toxicants which would violate any water quality standard, including toxicant
22 standards, sediment criteria, and dilution zone criteria shall not be allowed. (RCW
23 90.48.520)
24

25 RCW 90.48.035 grants Ecology authority to adopt standards for the quality of waters of
26 the state. Ecology has adopted the following standards: Ch. 173-200 WAC Ground
27 Water Quality Standards; Ch. 173-201A WAC Water Quality Standards for Surface
28 Waters; and Ch. 173-204 WAC Sediment Management Standards. These standards
29 generally require that permits issued by Ecology ensure standards are not violated, or a
30 compliance schedule be in place to bring discharges into compliance.
31

32 The Waste Discharge General Permit Program regulation, Chapter 173-226 WAC,
33 establishes a general permit program applicable to the discharge of pollutants, wastes,
34 and other materials to waters of the state. One of the requirements (WAC 173-226-110)
35 for issuing a general permit under the NPDES permit program is the preparation of a
36 draft permit and an accompanying fact sheet.
37
38

39 IV. DIFFERENCES BETWEEN THE 1995 PERMITS AND THIS PERMIT 40

41 The first permits issued to cover discharges from large and medium municipal separate
42 storm sewer systems were issued on a watershed basis. Ecology’s intention was to set up
43 a permitting framework that would encourage coordinated stormwater management
44 throughout a watershed, and could be integrated into Ecology’s watershed approach to
45 water quality management. Ecology has not reissued watershed based permits. Ecology
46 has found that we did not have resources to support watershed based stormwater

1 permitting, and that watershed based priorities and actions can be integrated into a single
2 general permit for large and medium municipal separate stormwater discharges.

3
4 The EPA stormwater rules for Phase I envisioned a process where municipal stormwater
5 management programs are reviewed and approved by the permitting agency before
6 permits are issued. The previously issued permits established a definition of a
7 stormwater management program, and set deadlines and compliance schedules for
8 stormwater management program approvals during the term of the permits. This general
9 permit does not follow either the EPA approach or the approach followed in the 1995
10 permits. Instead, the stormwater management program requirements are established in
11 the permit. This approach defines up front, as part of the permit development and
12 issuance process, the minimum acceptable elements of a stormwater program. The
13 advantages of this approach are that it satisfies the public involvement requirements of
14 both the federal and state clean water acts and ensures that the federal requirement to
15 control pollutants to the maximum extent practicable is met. It also requires considerably
16 fewer staff resources for Ecology to administer. An advantage for permittees and the
17 public of this approach is the permit requirements are known at the time of permit
18 issuance and not left to be determined later through iterative review and approval of
19 individual stormwater management programs. A disadvantage to this approach is that it
20 provides less flexibility to tailor local stormwater programs to reflect local priorities and
21 needs.

22 23 V. RELATIONSHIP TO OTHER STORMWATER PERMITS

24
25 In addition to requiring permits for discharges from large and medium municipal separate
26 storm sewers, EPA stormwater regulations establish permit requirements for industrial
27 stormwater, construction sites, and small municipal separate storm sewers (Phase II).

28 29 Industrial Stormwater General Permit

30
31 The federal stormwater regulations envision that Ecology and the municipal
32 permittees will cooperate to develop programs to monitor and control pollutants
33 in stormwater discharges to municipal storm sewers from industrial facilities. A
34 wide range of industrial facilities listed at 40 CFR 122.26(b)(14) must obtain an
35 NPDES permit from Ecology if they discharge to surface waters or to municipal
36 separate storm sewers which drain to surface waters. Under 40 CFR
37 122.26(d)(2)(iv)(C), municipal permittees are to establish a program to monitor
38 and control discharges from industrial facilities that the permittees determine are
39 contributing a substantial pollutant loading to municipal separate storm sewers.
40 In the preamble to the federal phase I stormwater regulations U.S. EPA clearly
41 states its position on the dual responsibility for controlling stormwater discharges
42 associated with industrial activity:

43
44 "Although today's rule will require industrial discharges through
45 municipal separate storm sewers to be covered by separate permit, EPA
46 still believes that municipal operators of large and medium municipal

1 systems have an important role in source identification, and the
2 development of pollution controls for industries that discharge storm water
3 through municipal separate storm sewer systems is appropriate. Under the
4 CWA (*Clean Water Act*), large and medium municipalities are responsible
5 for reducing pollutants in discharges from municipal separate storm
6 sewers to the maximum extent practicable. Because stormwater from
7 industrial facilities may be a major contributor of pollutants to municipal
8 separate storm sewer systems, municipalities are obligated to develop
9 controls for stormwater discharges associated with industrial activity
10 through their system in their stormwater management program."⁸
11

12 Construction Stormwater General Permit

13

14 Under this permit, permittees must adopt and implement control discharges from
15 construction sites into their MS4, including sites regulated under the construction
16 stormwater general permit.
17

18 WSDOT Permit

19

20
21 Instead of separate coverages under this permit and the Small Municipal (Phase
22 II) NPDES permit, WSDOT and Ecology decided to cover discharges from state
23 highways and other WSDOT facilities under a single stormwater permit.
24

25 The proposed WSDOT permit includes provisions requiring control of runoff
26 from new development, redevelopment and construction sites that are consistent
27 with the requirement in this permit, although tailored to highway construction.
28 Ecology has worked with WSDOT during the development of the Highway
29 Runoff Manual (HRM) to ensure that the HRM, together with conditions in the
30 WSDOT permit, will provide a level of control equivalent to the Ecology
31 Stormwater Management Manual for Western Washington.
32

33 WSDOT stormwater conveyances frequently interconnect with municipal MS4s
34 covered under this permit. It will be necessary for WSDOT and permittees
35 covered under this permit to work together to control illicit discharges, and
36 respond to spills and dumping.
37

38 Small Municipal Stormwater (Phase II) Permit

39

40 The Western Washington NPDES permit for small municipal separate storm
41 sewer systems (MS4s) is being issued at the same time as this permit. Small
42 MS4s are part of EPA Phase II stormwater regulatory program. Many of the
43 Phase II municipalities are located in the counties regulated under this permit.
44 They share basins with the permittees covered under this permit, have

⁸ U.S. EPA, Federal Register, Vol.55, No. 222; November 16, 1990; p. 48090.

1 interconnected conveyance systems and discharge into many of the same water
2 bodies.

3
4 Wherever possible, the requirements of this permit have been coordinated with
5 the requirements of the Western Washington and Eastern Washington Phase II
6 permits. All permits include similar approaches to compliance with standards,
7 TMDL implementation, and implementation of Ecology's applicable regional
8 Stormwater Management Manual. Some elements of the stormwater management
9 programs for the permits are similar. Successful implementation of stormwater
10 management programs in areas where conveyance systems are interconnected or
11 discharges go to the same water body will require coordination. Ecology has
12 established expectations in this permit and the Phase II permit for future
13 coordination of monitoring efforts. Ecology recommends that all municipal
14 stormwater permittees, large, medium and small municipalities, jointly engage in
15 basin planning in shared basins.
16

17 18 VI. EXPLANATION OF PERMIT CONDITIONS

19 20 Summary

21
22 This municipal stormwater NPDES permit requires the development and implementation
23 of a stormwater management program for municipal separate storm sewers owned or
24 operated by the permittees. Implementation of the stormwater management program
25 required under this permit constitutes reduction of pollutants to the maximum extent
26 practicable (MEP) during the life of the permit, as required in section 402(p)(3)(B) of the
27 federal Clean Water Act.
28

29 The conditions defining the stormwater management program requirements are based on
30 U.S. EPA regulations for the municipal stormwater permit program (CFR title 40,
31 §122.26), the stormwater elements of the Puget Sound Water Quality Management Plan,
32 the State Water Pollution Control Act, Chapter 90.48 RCW and the annual reports
33 submitted by the permittees under the previous municipal stormwater permit.
34

35 S1 - Permit Coverage and Permittees

36
37 This section defines the area covered under this permit, defines entities that are to be
38 covered under the permit, and explains how to obtain permit coverage.
39

40 The permit covers discharges from large and medium Municipal Separate Storm Sewer
41 Systems (MS4s), as defined by EPA at 40 CFR 122.26(b)(4) and (7). Large MS4s are
42 defined as all Municipal Separate Storm Sewers (MS3s) located in either: an incorporated
43 city with a population over 250,000 in the 1990 census; or a county with a population
44 over 250,000 in the unincorporated portion of the county that falls within an urbanized
45 area, as defined in the 1990 census. The definition of a Medium MS4s is basically the
46 same, with a population threshold of more than 100,000 and up to 250,000 people.

MS3s are defined at 40 CFR 122.26(b)(8). Essentially, MS3s are all publicly owned or operated conveyances, located in a place that meets the criteria for a Large or Medium MS4. This includes conveyances owned or operated by public entities such as flood control or drainage districts, ports, universities, and other special districts established under state law. Conveyances are broadly defined to include roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains.

MS3s owned or operated by Washington State Department of Transportation (WSDOT) are not covered under this permit because they will be covered under a separate permit.

The permittees listed in Special Condition S1.B. are the municipalities and that are required to obtain a permit in accordance with 40 CFR 122.26(b)(4) and (b)(7). The municipalities named as permittees for this general permit are Seattle, Tacoma, King County, Snohomish County, Pierce County and Clark County. In accordance with special condition S10 of the previous Municipal Stormwater permits, and WAC 173-226-220, all permittees named in S2.A reapplied and therefore continue coverage under this permit.

King County Department of Metropolitan Services (METRO) co-applied for permit coverage in the City of Seattle and is covered as a co-permittee with the City of Seattle. King County owns and operates stormwater conveyances in the City of Seattle that were constructed to separate stormwater flows from sanitary sewer lines. King County Department of Metropolitan Services (METRO) reapplied in accordance with Special Condition S10 and WAC 173-226-220.

EPA stormwater regulations issued in 1999 limit the Phase I municipal stormwater permit requirement to municipalities that met the population trigger for large and medium municipalities in the 1990 census (40 CFR 122.26.(b)(4)(i) and (b)(7)(i)). All other municipalities that require permit coverage shall be covered under the Phase II municipal stormwater permit program.

Discharges from publicly owned or operated Municipal Separate Storm Sewers (MS3s), located within the cities and counties named as permittees under this permit, are also required to have permit coverage. This requirement applies to special districts such as ports, universities, drainage districts and flood control districts. Ecology recognizes that there are special districts which need a permit but did not submit application materials, or participate with another permittee as a co-applicant (see permit definitions). Paragraph S1.D identifies this group of permittees and calls them secondary permittees. The Secondary Permittee class is designed to capture all those entities that own or operate a Municipal Separate Storm Sewer System (MS4) subject to permit requirements as defined at 40CFR122.26(a) that are not Cities or Counties. This term is used because this category of permittees generally lacks the legal authority to fully comply with the requirements applicable to the named municipal permittees. For example, secondary permittees generally do not have the authority to regulate new development, or to enforce

1 against illicit discharges. This permit establishes an application process and stormwater
2 management program for secondary permittees.

3
4 To comply with the requirements of Ch. 173-226 WAC, the General Permit Rule, it is
5 necessary for entities to submit an application that contains the information specified in
6 WAC 173-226-200. The Notice of Intent (NOI) is the official permit application
7 document required to request coverage under these general permits and is included in this
8 permit.

9
10
11 S2 - Authorized Discharges

12
13 This section of the permit authorizes the discharge of stormwater from municipal separate
14 storm sewers, owned or operated by the permittees, to waters of the state, subject to
15 certain limitations. Consistent with the federal rules, direct discharges to surface waters
16 from privately owned or operated storm drains are not regulated by this permit.

17
18 S2.A.1 - Discharges into and from municipal separate storm sewers owned or operated by
19 permittees must be in compliance with the terms and conditions of the permit.

20
21 S2.A.2. - Discharges from new municipal separate storm sewers, constructed by the
22 permittee after the issuance date of this permit, are authorized, provided those discharges
23 have received all applicable state and local permits, including compliance with the State
24 Environmental Policy Act (SEPA). The control measures required under the permits are
25 area-wide and will apply to any future discharges from the municipal storm sewer
26 systems regulated under this permit.

27
28 S2.A.3. - Ecology is issuing this permit under joint federal and state authorities. Under
29 the federal Clean Water Act permits are required for point source discharges of pollutants
30 to waters of the United States. Under that State Water Pollution Control Act (Chapter
31 90.48 RCW) permits are required for the disposal of waste materials into waters of the
32 State. Under chapter 90.48 RCW the definition of 'waters of the state' includes
33 underground waters whereas the definition of waters of the United States does not.

34
35 In accordance with state law Ecology is regulating both discharges to surface waters and
36 discharges to ground waters. Discharges to ground water are covered under the permit
37 because portions of the areas regulated under these permits may include discharges of
38 stormwater to the ground from municipal separate storm sewers. It is appropriate that the
39 stormwater management programs that are required under these permits should apply
40 area-wide, regardless of where water is discharged, and that measures are taken to reduce
41 the discharge of pollutants to ground waters as well as surface waters. However, as
42 stated in paragraph S2.A.3 of the permit, discharges to ground water that are covered
43 under the Underground Injection Control (UIC) program are not covered under this
44 permit to avoid overlapping regulation of these discharges.

1 Stormwater may be discharged to ground water via infiltration or injection techniques.
2 Injection facilities such as drywells that are classified as UIC facilities are covered under
3 the UIC program (Chapter 173-218 WAC); these discharges are not covered by this
4 permit, however stormwater management programs developed to comply with this permit
5 may be used to satisfy some of the requirements of the UIC program. Many infiltration
6 facilities, including infiltration basins and trenches and dispersion techniques, are not
7 classified as UIC wells; they are covered under this permit because State law requires that
8 they be addressed.

9
10 S2.A.4. - Clarifies that stormwater discharges to ground waters that are not subject to
11 federal regulation are regulated only by state authority. It is U.S. EPA policy and
12 supported by case law, that where hydrologic connectivity exists between a discharge to
13 ground water and a surface water body, the discharges to ground water may be regulated
14 under the federal NPDES permit program. Stormwater discharges to ground waters may
15 be subject to this Permit under federal regulations if site-specific information
16 demonstrates that they are in hydraulic continuity with a nearby surface water. (See e.g.,
17 Exxon Corp. v. Train, 554 F.2d 1310, 1312, n.1 (5th Cir. 1977); McClellan Ecological
18 Seepage Situation v. Weinberger, 707 F.Supp. 1182, 1195-96 (E.D. Cal. 1988); and
19 Washington Wilderness Coalition v. Hecla Mining, case # CS 94-233 FVS). Ecology
20 believes the best guidance on this issue comes from the United States District Court
21 Eastern District of Washington (Washington Wilderness Coalition v. Hecla Mining, 870
22 F. Supp 983, 990). The court held that “since the goal of the CWA is to protect the
23 quality of surface waters, any pollutant which enters such waters, whether directly or
24 through groundwater, is subject to regulation by NPDES permit.” The court went on to
25 hold, “[I]t is not sufficient to allege groundwater pollution, and then to assert a general
26 hydrological connection between all waters. Rather, pollutants must be traced from their
27 source to surface waters, in order to come within the purview of the CWA.” The decision
28 on hydraulic continuity is dependent upon the pollutant (type and mobility in soils), the
29 pollutant loading, the soils at the site, and the hydrology of the site.

30
31 S2.B. - The discharge of stormwater associated with industrial activities through
32 municipal separate storm sewers is authorized by this permit, but is required to have a
33 separate NPDES permit under U.S. EPA regulations. For further explanation of the
34 reasons for the separate stormwater permit requirement, see the preamble to the
35 amendments to 40 CFR parts 122, 123, and 124 published in the Federal Register, Friday,
36 November 16, 1990.

37
38 Since municipal separate storm sewers carry stormwater and other flows, this permit
39 authorizes the discharge of stormwater commingled with other flows, under certain
40 circumstances. Section 402(p)(3)(B)(ii) of the federal Clean Water Act clearly states that
41 municipal permits are to effectively prohibit non-stormwater discharges to the municipal
42 separate storm sewer system. However, such discharges to municipal separate storm
43 sewers can be authorized if they receive a NPDES permit (other than this municipal
44 stormwater permit). Industrial process wastewater and non-process wastewater are non-
45 stormwater discharges and cannot be authorized under this permit without a separate
46 NPDES permit.

1
2 All other non-stormwater discharges are to be addressed through the program to detect
3 and remove illicit discharges and improper disposal as required by the illicit discharge
4 detection and elimination requirements of the stormwater management program required
5 under S5 and S6 of this permit.
6

7 S2.C. - accordance with 40 CFR 122.26(d)(2)(iv)(B)(1) this permit authorizes discharges
8 from emergency fire fighting activities, in accordance with 40CFR122.26(d)(2)(iv)(B)(1).
9 Training is not considered an emergency fire fighting activity. Training is not considered
10 an emergency fire fighting activity and discharges from fire fighting training activities
11 into the permittees MS4 are not authorized by this permit.
12

13 S2.D – Illicit discharges and other non-stormwater discharges are not authorized by this
14 permit except as allowed under the illicit discharge detection and elimination
15 requirements of the stormwater management program required under S5 and S6 of this
16 permit. Coverage under and compliance with this permit does not relieve permittees
17 from compliance with other state and federal laws including but not limited to CERCLA
18 (Superfund), and OPA (Oil Pollution Act).
19

20 S3 - Responsibilities of Permittees

21

22 Not all parts of the permit apply to all permittees. This section is included to explain the
23 responsibilities of each.
24

25 This section also allows a permittee to rely on another entity to meet permit requirements.
26 EPA Phase II regulations for small MS4s explicitly allow such an arrangement. Ecology
27 felt that the Phase I municipalities should also be allowed to rely on other entities such as
28 Health Districts or Conservation Districts to implement their stormwater management
29 programs and have included this provision. However, each permittee retains ultimate
30 responsibility for meeting all applicable permit conditions.
31

32 S4 - Compliance with Standards

33

34 Ecology's permitting strategy for municipal stormwater discharges covered under this
35 permit is to:

- 36 ■ Require the adoption and implementation of stormwater management programs as
37 described in this permit.
- 38 ■ Assess the effectiveness of those programs through monitoring and/or other
39 evaluation efforts.
- 40 ■ Require in subsequent permits, implementation of more effective and/or more
41 targeted stormwater best management practices if necessary to protect or restore
42 water quality.
- 43 ■ Evolve towards eventual compliance with water quality standards through
44 successive permit cycles.
45

1 This section of the permit has been significantly revised from the preliminary draft
2 version of the permit. Ecology received numerous comments regarding this section of
3 the permit during the public comment period on the preliminary draft permit, in which
4 this section made a distinction between compliance requirements for new and existing
5 discharges. Consistent with Ecology's priority of preventing future impacts to water
6 quality from municipal stormwater discharges, the preliminary draft permit held new
7 discharges to a higher standard than for existing discharges: existing discharges were to
8 meet the MEP standard by implementing the SWMP in S5 or S6 plus any TMDL
9 requirements, and new discharges were not to cause or contribute to a violation of water
10 quality standards. Some jurisdictions complained that the distinction between new and
11 existing municipal stormwater discharges is often difficult to make, and the requirements
12 might make otherwise beneficial projects impossible to implement. Ecology agreed with
13 the comments and removed the distinction between new and existing discharges in this
14 formal draft permit. Another change from the preliminary draft permit is that explicit
15 references to state law are included in this revised section. The revised section clarifies
16 that compliance with all of the permit conditions meets MEP and AKART requirements.
17 Condition S4.A of the permit prohibits the discharge of toxicants to waters of the State of
18 Washington which would violate any water quality standard, including toxicant
19 standards, sediment criteria, and dilution zone criteria. The basis for this permit
20 condition is RCW 90.48.520 which states:

21 "In order to improve water quality by controlling toxicants in wastewater, the
22 department of ecology shall in issuing and renewing state and federal wastewater
23 discharge permits review the applicant's operations and incorporate permit
24 conditions which require all known, available, and reasonable methods to control
25 toxicants in the applicant's wastewater. Such conditions may include, but are not
26 limited to: (1) Limits on the discharge of specific chemicals, and (2) limits on the
27 overall toxicity of the effluent. The toxicity of the effluent shall be determined by
28 techniques such as chronic or acute bioassays. Such conditions shall be required
29 regardless of the quality of receiving water and regardless of the minimum water
30 quality standards. *In no event shall the discharge of toxicants be allowed that*
31 *would violate any water quality standard, including toxicant standards, sediment*
32 *criteria, and dilution zone criteria."* (Emphasis added)
33

34 The term "toxicants" is not defined in chapter 90.48 RCW and there is no readily
35 available legislative history which would help define which specific pollutants would be
36 considered toxicants. The state water quality standards in existence at the time RCW
37 90.48.520 was adopted also did not include a definition for either toxicant or toxic
38 pollutant.
39

40 At the time that RCW 90.48.520 was adopted, the federal Clean Water Act did contain a
41 definition for toxic pollutant:

42 "The term "toxic pollutant" means those pollutants, or combinations of pollutants,
43 including disease-causing agents, which after discharge and upon exposure,
44 ingestion, inhalation or assimilation into any organism, either directly from the
45 environment or indirectly by ingestion through food chains, will, on the basis of
46 information available to the Administrator, cause death, disease, behavioral

1 abnormalities, cancer, genetic mutations, physiological malfunctions (including
2 malfunctions in reproduction) or physical deformations, in such organisms or
3 their offspring.” (33 U.S.C. § 1362(13))
4

5 The federal Clean Water Act at that time also included a list of toxic pollutants. (33
6 U.S.C. § 1317(a)(1)) The list of toxic pollutants is also known as the priority pollutant
7 list. Based on the absence of legislative history, for this permit the term ‘toxicant’ is
8 assumed to have the same meaning as ‘toxic pollutant’ as defined by the federal Clean
9 Water Act and EPA’s implementing regulations. This is similar to the term “toxic
10 substance” which is used in the Water Quality Standards for Surface Waters of the State
11 of Washington, Chapter 173-201A WAC.
12

13 Condition S4.B of the permit does not authorize a violation of Washington State surface
14 water quality standards (Chapter 173-201A WAC), ground water quality standards
15 (Chapter 173-200 WAC), sediment management standards (chapter 173-204 WAC), or
16 human health-based criteria in the national Toxics Rule (Federal Register, Vol. 57, NO.
17 246, Dec. 22, 1992, pages 60848-60923).
18

19 Strict compliance with water quality standards for municipal stormwater discharges is not
20 required by § 1342(p)(3)(B) of the federal Clean Water Act. The maximum extent
21 practicable permitting standard for municipal stormwater permits is separate and distinct
22 from the requirement under 33 U.S.C. § 1311(b)(1)(C) that permits include any more
23 stringent limitation, including those necessary to meet water quality standards. In
24 *Defenders of Wildlife v. Browner*, the ninth circuit court determined:

25 “...the text of 33 U.S.C. § 1342(p)(3)(B), the structure of the Water Quality Act
26 as a whole, and this court's precedent all demonstrate that Congress did not
27 require municipal storm-sewer discharges to comply strictly with 33 U.S.C. §
28 1311(b)(1)(C).”
29

30 *(Note to readers: 33 U.S.C. § 1311(b)(1)(C) is the part of the federal Clean Water*
31 *Act requiring any more stringent effluent limitations necessary to meet water*
32 *quality standards.)*
33

34 Although the Clean Water Act does not require municipal storm sewer discharges to
35 comply strictly with U.S.C. § 1311(b)(1)(C), U.S.C. § 1342(p)(3)(B)(iii) states:
36 “[p]ermits for discharges from municipal storm sewers . . . shall require . . . such other
37 provisions as the Administrator . . . determines appropriate for the control of such
38 pollutants.” (Emphasis added.)
39

40 This provision gives the Ecology discretion to determine whether strict compliance with
41 U.S.C. § 1311(b)(1)(C) is appropriate. In these permits Ecology has adopted an interim
42 BMP based approach towards meeting the goals of the Clean Water Act and eventual
43 compliance with water quality standards.
44

45 Consistent with the EPA permitting approach for municipal stormwater discharges,
46 Ecology has not established numeric end-of-pipe effluent limits for the discharges

1 covered under this permit. EPA policy, transmitted in 1996, explains an alternative
2 approach to effluent limits that is appropriate for storm water permits:

3
4 “Due to the nature of storm water discharges, and the typical lack of information
5 on which to base numeric water quality-based effluent limitations (expressed as
6 concentration and mass), EPA will use an interim permitting approach for NPDES
7 storm water permits.

8 The interim permitting approach uses best management practices
9 (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs
10 in subsequent permits, where necessary, to provide for the attainment of water
11 quality standards. In cases where adequate information exists to develop more
12 specific conditions or limitations to meet water quality standards, these conditions
13 or limitations are to be incorporated into storm water permits, as necessary and
14 appropriate.” (EPA policy, Interim Permitting Approach for Water-Quality Based
15 Effluent limits in Storm Water Permits, 9/01/96)

16
17 While the permit does not require strict compliance with state water quality standards for
18 municipal stormwater discharges (except where compliance may be required by RCW
19 90.48.520), neither does Ecology intend the permit provide a categorical exemption from
20 compliance with state water quality standards for municipal stormwater discharges.
21 Because compliance with the water quality standards is an eventual goal of this permit, it
22 is appropriate to use the water quality standards as a measure of the effectiveness of the
23 SWMP, and to help the permittees identify priorities

24
25 Ecology acknowledges that it may take decades or longer to address the water quality
26 impacts of existing municipal stormwater discharges. In part, this is because of the
27 difficulty and challenges associated with reversing the water quality impacts of existing
28 stormwater discharges. The focus of this permit is to prevent further water quality
29 impairment due to new stormwater discharges and make reasonable progress in
30 addressing existing sources of water quality impairment.

31
32 Condition S4.C requires the permittee to reduce the discharge of pollutants to the
33 maximum extent practicable. This requirement is based on U.S.C § 1342(p)(3)(B)(iii).
34 Neither Congress nor EPA has defined "maximum extent practicable" (MEP) and have
35 instead left the determination of what constitutes MEP up to the individual permitting
36 authorities. As a result, permit requirements established by Ecology must be tempered
37 and limited by State law. For example, the application of post construction stormwater
38 controls on new development and re-development required by this permit must be done
39 within the context of state vesting laws. Similarly, the inspection requirements of this
40 permit must be carried out in a manner that is consistent with the State Constitution and
41 State law.

42
43 In adopting both the phase I and the phase II rules the EPA recognized that state law and
44 at times local law may limit or restrict the scope of permit requirements (FR Vol. 55, No.
45 222, pg 48041) and (FR Vol. 64, No. 235, pg 68766).

Ecology has determined the development, implementation and enforcement of stormwater management programs required under this permit constitute the controls necessary to reduce the discharge of pollutants to the maximum extent practicable.

Condition S4.D requires the use of all known, available and reasonable methods of prevention control and treatment to prevent and control pollution of waters of the state of Washington. This permit requirement is based on RCW 90.48.170 and RCW 90.48.520. Ecology has determined compliance with this permit including the development, implementation and enforcement of stormwater management programs required under this permit constitute the use of all known, available and reasonable methods of prevention control and treatment to prevent and control pollution of waters of the state of Washington.

S5 – Stormwater Management Program for Permittees

S5.A. – This section of the permit establishes the requirement for the cities and counties that are named as permittees in Special Condition S1.B. to implement a stormwater management program (SWMP). The stormwater management program forms the core requirement of this permit. The minimum requirements for the stormwater management program are established in the permit. Permittees wishing to implement programs different from the SWMP in this permit may apply for an individual permit or submit modifications to Ecology for inclusion in this permit.

Each permittee must submit written documentation of their SWMP with the first annual report. The purpose of this requirement is to have a complete written record of the local programs, planning documents, and ordinances or other regulatory documents that the permittees will implement to meet the permit requirements. Ecology does not require that this documentation to be submitted every year, only updates are required after the first year.

Each permittee is required to track the cost of development and implementation of the SWMP. This is based on the EPA requirements at 40 CFR 122.26 calling for a fiscal analysis of the necessary capital and operations and maintenance expenditures to implement the SWMP, and at 40 CFR 122.42(c) for reporting of annual expenditures and proposed budgets. Ecology has deviated from the EPA requirement by requiring tracking of expenditures, but not requiring the forward looking fiscal analysis and budgets. The reason for the change is that Ecology is not following EPA's permitting strategy where each permittee was to propose a SWMP for the term of the permit. Instead Ecology is prescribing the SWMP requirements in this permit. The anticipated cost and resources available to implement the program are not part of the basis for deciding whether individual SWMPs meet the MEP standard for this permit. Tracking of expenditures is still necessary, however, to evaluate the MEP standard established in future permits. Ecology's expectation for cost tracking are listed in the annual report instruction forms in Appendix 3 of the permit.

1
2 The requirement to track inspections, official enforcement actions and public education
3 activities is based on EPA regulations at 40 CFR 122.42(c).
4

5 S5.B. – Consistent with state and federal law this section requires that the SWMP be
6 designed to reduce the discharge of pollutants to the MEP, and meet state AKART
7 requirements. Where appropriate, Permittees should continue implementation of
8 existing stormwater management program components that go beyond what is required in
9 this permit where they are necessary to reduce the discharge of pollutants to the MEP. In
10 addition, this section calls for continued implementation of existing programs as
11 permittees phase in implementation of the requirements in this permit.
12

13 S5.C. – Stormwater Management Program Components 14

15 This section of the permit defines the stormwater management program for the term of
16 this permit. Each component of the SWMP is described, and minimum performance
17 measures are specified. The SWMP includes administrative and legal components that
18 must be in place to ensure program implementation, as well as components which should
19 directly effect pollutant reductions and reduction of impacts.
20

21 S5.C.1. Legal Authority

22 This requirement is drawn directly from EPA regulations (40 CFR 122.26). The
23 requirement for interagency agreements to control the contribution of pollutants from one
24 portion of the MS4 to another applies only to co-applicants. So far under this permit only
25 Seattle and King County are co-applicants. However, the language requiring legal
26 authority to prohibit illicit discharges, and carry out inspections and enforcement (within
27 the limitations of state law) applies to discharges coming into the MS4 from another
28 jurisdiction. As operators of MS4s, the permittees which receive, convey and discharge
29 pollutants from third parties, become responsible for those pollutants. By accepting
30 discharges, whether passively or not the operator of the MS4 is accepting responsibility
31 for those discharges, and the consequences of those discharges. These discharges may
32 cause or contribute to a condition of contamination or exceedances of receiving water
33 quality standards. Controlling the contribution of pollutants into the MS4 can be
34 undertaken through a broad range of actions – source control inspections and follow-up;
35 enforcement of local water quality ordinances; technical assistance programs; targeted
36 inspection and maintenance programs; and cooperative agreements with adjoining
37 municipalities or other public entities.
38

39 Ecology recognizes controlling the contribution of pollutants from adjoining
40 municipalities or co-permittees whose storm sewers interconnect with those of the
41 permittee is may be difficult, particularly if the adjoining municipality is not covered
42 under a municipal stormwater NPDES permit. However, as explained above, the
43 permittee cannot passively accept pollutants into their MS4 from outside sources.
44 Adequate control in these circumstances means, at minimum, having an established
45 process and point of contact for working with the adjoining municipality or co-permittee
46 to try to resolve problems.

1
2 S5.C.2. Municipal Separate Storm Sewer System Mapping and Documentation

3 This condition is a continuation of the requirement in the existing permits to gather and
4 maintain adequate information to conduct planning, priority setting and program
5 evaluation activities.

6
7 S5.C.2.b.ii - Under the previous permit, tributary areas from *major municipal separate*
8 *storm sewer outfalls* were required to be mapped. Except for land areas zoned industrial,
9 major municipal storm sewer outfalls were defined as single pipes with an inside
10 diameter of 36 inches or greater. For pipes serving industrial areas a major municipal
11 storm sewer outfall was defined as single pipe with an inside diameter of 12 inches or
12 greater. Reducing the outfall size which triggers the requirement for mapping is intended
13 to incrementally expand the portions of the permittees MS4 that are mapped.

14
15 S5.C.2.b.iii and iv - A second new requirement is the initiation of a program to map
16 connections to municipal separate storm sewers. New connections must be mapped
17 starting from the effective date of the permit. There is an implementation schedule for
18 mapping existing connections over 8 inches. Again the intent is to expand our
19 knowledge of the system regulated under this permit.

20
21 S5.C.2.b.v – The requirement to map areas that do not discharge to surface waters calls
22 for mapping geographic areas such as city blocks, potholes, parts of sub-basins, etc, that
23 do not drain to surface waters, and instead drain to the ground. This provision does not
24 require mapping individual drainage systems that discharge to ground.

25
26 S5.C.3. Coordination

27 This permit requirement calls for establishment of coordination mechanisms both
28 internally and externally to aid in the implementation of the SWMP.

29
30 S5.C.3.i. - Internal Coordination. The permit applies to the entire local government, not
31 just the stormwater utility (or similar department). It is up to the permittee to establish
32 communication and coordination mechanisms necessary to comply with the permit. The
33 permit does not specify how the coordination will take place, allowing permittees the
34 flexibility to design coordination systems to meet their needs.

35
36 S5.C.3.ii - External Coordination – Intergovernmental coordination is a necessary part of
37 a SWMP since drainage basins seldom follow jurisdictional boundaries. This
38 requirement is based on EPA regulations (40 CFR 122.26(d)(2)(iv)) calling for
39 intergovernmental coordination, where necessary, to reduce the discharge of pollutants to
40 the MEP. Coordination through watershed councils is acceptable to Ecology. Note that
41 coordination with Tribes, and others, is encouraged, but not mandated under this permit,
42 because they aren't covered under a permit issued by Ecology.

43
44 S5.C.4. Public Involvement and Participation

45 The EPA Phase II regulations require public involvement and participation as part of the
46 SWMP. Ecology felt this was a reasonable expectation for Phase I permittees as well.

Ecology expects that existing public involvement and participation opportunities conducted by the permittees are likely sufficient to satisfy this requirement.

This section also requires each permittee to make documents and all submittals available electronically either on the local webpage or through Ecology's webpage. Ecology feels this is a reasonable requirement given the common use and proliferation of public information on the internet.

S5.C.5. Controlling Runoff from New Development, Redevelopment and Construction Sites

Federal Rules and the Existing (1995) Permit Requirement:

The USEPA regulations require Phase I municipal stormwater permittees to "develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment." (40 CFR Part 122.26(d)(2)(iv)(A)(2)). The rules also require a program "to reduce pollutants in storm water runoff from construction sites." (40 CFR Part 122.26(d)(2)(iv)(D)).

In the permit issued in 1995, Ecology required Phase I permittees' programs to include: "ordinances (except WSDOT's program), minimum requirements and best management practices (BMP's) equivalent to those found in Volumes I – IV of Ecology's Stormwater Management Manual for the Puget Sound Basin (1992 edition, and as amended by its replacement), permits, inspections, and enforcement capability." The inclusion of the manual as a permit condition was consistent with the direction given by the Puget Sound Water Quality Management Plan of that time.

Though the 1995 permit directs permittees to implement requirements of updated stormwater manuals, Ecology chose not to enforce that provision when the updated stormwater manuals were published in 2001 and 2005. At the time of the 2001 and 2005 Stormwater Manual updates, Ecology informed Phase I permittees that it intended to require the permittees to update their local stormwater requirements to be consistent with Ecology's updated stormwater manuals.

In developing the content for this section of the reissued permit, Ecology also was able to consider the requirements in more recently issued federal rules for the Phase II municipal stormwater permittees (40 CFR 122.34.(b)(4) and (5)).

The USEPA phase II regulations require permit holders to develop, implement and enforce a program to reduce pollutants in stormwater runoff from construction activities. Phase II permit holders are also required to develop, implement and enforce a program to reduce pollutants in stormwater runoff from new development and redevelopment projects.

The local program for construction site control in Phase II municipalities must include the following features:

- An ordinance to require erosion and sediment control and sanctions;

- Requirements to use appropriate best management practices;
- Requirements to control waste, concrete truck washout, chemicals, litter, and sanitary wastes;
- Procedures for site plan review which consider potential water quality impacts;
- Procedures for receipt and consideration of information submitted by the public;
- Procedures for site inspection and enforcement of control measures.

The local program for post-construction stormwater management in new development and redevelopment must:

- Develop and use strategies which include a combination of structural and/or non-structural BMP's that are appropriate for the community;
- Use an ordinance to address stormwater to the extent allowable under law;
- Ensure adequate long-term operation and maintenance of BMP's.

The federal rules continue with recommendations for municipalities to consider in the development of their post-construction stormwater management program.

In light of the federal Phase II rules which apply to smaller municipalities, and the Phase I permits history, Ecology has decided to proceed with its previously stated intent to require the Phase I permittees to update their stormwater requirements to be consistent with Ecology's updated Stormwater Management Manual for Western Washington. The permittees have twelve months from the effective date of the permit to adopt equivalent provisions into ordinance or other enforceable documents. In addition, Ecology has added permit conditions in regard to implementation of the requirements through design review, inspections, and enforcement. Ecology has also tried to coordinate deadlines for achievement of permit conditions between the Phase I and Phase II permits. For instance, because some Phase II municipalities reference their county's stormwater manual in their ordinances, the deadline for Phase II municipalities to adopt stormwater requirements is after the deadline for the Phase I municipalities.

How the Permit is Consistent with Federal Rules:

The most effective way to minimize the impacts of stormwater discharges from areas of new development and redevelopment (as called for in the federal rules) is to design developments using techniques that:

- 1) minimize the generation of stormwater runoff (low impact development);
- 2) reduce exposure of pollutants to precipitation and stormwater runoff (source control BMP's);
- 3) remove pollutants in stormwater runoff (treatment BMP's); and
- 4) control either the volumetric flow rate of stormwater discharged (for discharges to streams), or control the volume of water discharged (if discharging to a wetland).

The 2005 Stormwater Management Manual for Western Washington (referred to as the western Washington manual) addresses items 2 through 4 above. Item 1 is partially addressed through the application of "on-site stormwater management BMP's" as specified by Minimum Requirement #5 in the western Washington manual. However, it

1 should be more fully addressed through local governments' adoption of: 1) site
2 development standards that are far less disruptive of the natural hydrology (i.e., low
3 impact development standards); and 2) comprehensive land use plans that consider the
4 cumulative hydrologic and pollutant impacts of potential land development on the aquatic
5 natural resources. This second action goes beyond the scope of this NPDES permit.
6

7 The Permit requires permittees to allow low-impact development to minimize the
8 creation of impervious surfaces. Washington's population is projected to increase by
9 twenty-two percent from 2000 to 2010. Urban land area in the United States has
10 quadrupled since 1954. In most large metropolitan areas, urban land area rose more than
11 twice as fast as population did between 1950 and 1990. Passage of the Growth
12 Management Act in this state was spurred, in part, by this disparity between urban land
13 area and population growth rates. Compact-style development, with a smaller footprint,
14 reduced impervious surfaces, natural areas within the urban core, and improved water
15 detention can help local communities meet the Growth Management Act's goals of
16 accommodating growth while protecting the environment.
17

18 The most recent editions of the Eastern and Western Washington stormwater manuals are
19 the latest technical guidance from the Department of Ecology on measures to control the
20 quantity and quality of stormwater runoff from new development and redevelopment
21 projects. The stormwater manuals, consistent with federal stormwater regulations,
22 represent a generic, presumptive approach to meeting federal and state water quality
23 requirements. The presumption is the procedures and best management practices
24 outlined in the manual will generally result in compliance with the statutes.
25

26 This generic presumptive approach to meeting water pollution control laws is intended to
27 handle the vast majority of new and redevelopment projects. There are literally
28 thousands of those projects every year. There aren't sufficient human resources or time
29 to do the type of site-by-site analysis that occurs with municipal sewage treatment and
30 industrial wastewater discharges. In addition, a site-specific analysis is difficult to
31 perform for stormwater because of its ephemeral nature and variable pollutant
32 concentration over the course of a discharge event. So, USEPA, some state water
33 pollution control agencies, and some local governments have each published or adopted
34 stormwater manuals that provide an established process for identifying appropriate
35 prevention, treatment, and flow management practices.
36

37 However, there are instances where because of the size of a project or the sensitivity of a
38 receiving water, or because of some other regulatory need to ensure compliance with
39 standards (e.g., a certification under section 401 of the Clean Water Act that the
40 discharge will comply with water quality standards), a site-specific stormwater analysis is
41 necessary. In those instances, the appropriate level of treatment identified may be
42 different from what is identified in the western Washington stormwater manual.
43

44 The permit allows the permittees to adopt alternative minimum requirements, thresholds,
45 definitions, adjustment and variance criteria as compared to those in Appendix 1, if they
46 have been approved by Ecology as equivalent. A permittee must demonstrate to

Ecology's satisfaction that its alternative provides equal protection of receiving waters and equal levels of pollutant control when compared to the provisions in Appendix 1. In addition, the permittees may propose alternative site planning processes, and BMP selection and design criteria. The permittee is obligated to demonstrate to Ecology's satisfaction that their alternative approaches will protect water quality, meet the "maximum extent practicable" requirement of federal statutes, and meet the all known, available and reasonable methods of prevention, control, and treatment requirements of the state's Water Pollution Control Act. Permittees that choose to use the guidance in Ecology's 2005 stormwater manual can rely on Ecology's determinations that the manual meets the federal and state statutory requirements.

Section S5.C.5.(b)v. requires that the permittee establish legal authority to conduct inspections and enforce maintenance standards for all projects approved under the new development and redevelopment provisions of this permit. This provision is included in response to case law in this state which limits a municipality's ability to gain access to private property without permission from the owner or tenant (*City of Seattle v. McCready*, 123 Wash. 2d 260, 868 P.2d 134 (Wa. 02/24/1994)).

Procedures to Implement Construction Site Requirements and Post-Construction Requirements:

Within eighteen months of the permit's effective date, the local governments need to develop and demonstrate the capability to: 1) properly apply those requirements to projects through design reviews and project inspections; and 2) take proper enforcement actions to ensure compliance with those requirements.

Ecology has established minimum performance measures for the permittees to demonstrate capability to implement stormwater requirements. Those measures include: review of all stormwater site plans submitted prior to construction; records of performance of 95% of the required pre-project, active project, and completed project inspections. Pre-project inspections are required only for projects that have a high potential for sediment transport as identified by use of the criteria in Appendix 7 to the permit. That appendix was developed in conjunction with local government stormwater managers.

The permit does not include any specific minimum measures for the permittees' enforcement strategies, however, Ecology's expectation is that permittees will establish clear thresholds for escalating levels of enforcement action in response to violations.

Provisions for Adequate Recordkeeping and Training of Stormwater Staff:

To help organize, track, and document achievement of stormwater program implementation, the permit includes a requirement for recordkeeping of reviews, inspections, enforcement actions, training, and the staff trained. These records could be used to evaluate the permittees' compliance with permit requirements.

S5.C.6. Structural Stormwater Controls

1 This provision is drawn directly from the EPA rules at 40 CFR 122.26(b)(2) which call
2 for a stormwater management program that includes, among other things, structural and
3 source control measures, accompanied with an estimate of the expected reduction of
4 pollutant loads and an implementation schedule. Ecology has not set a minimum
5 expectation for the level of effort for this requirement. Ecology understands that it is not
6 feasible to provide structural controls to mitigate the impacts of runoff from all existing
7 development. Permittees will set priorities and address the highest-ranked problems
8 subject to the limitations of available resources.

9
10 Permittees are required to include a list of planned individual projects that are scheduled
11 for implementation during the term of the permit with the first year annual report. The
12 list must be updated with each annual report. Review and approval of the list by
13 Ecology is not a permit requirement

14 15 S5.C.7. Source Control Program for Existing Development

16 This provision is based upon EPA rules at 40 CFR 122.26(b)(2) which call for a
17 stormwater management program that includes, among other things, source control
18 measures. The 2000 Puget Sound Water Quality Management Plan also calls for a source
19 control program.

20
21 Under the existing permits, 2 permittees, King County and Clark County have adopted
22 and implemented ordinances that are essentially the same as that called for in S5.C.7b.i of
23 this section. Ecology has concluded that the source control requirements in this permit
24 are both reasonable and practicable based on the observation that they are already being
25 implemented by 2 of the phase I permittees covered by this permit.

26
27 In S5.C.7b.ii., the permit requires a program to identify sites which are potentially
28 pollutant generating. Note that estimating the inventory of land uses and businesses that
29 are potentially pollutant generating is acceptable, a completely accurate list is both not
30 possible, nor expected, because of business turnover. The categories of land uses and
31 businesses listed in Appendix 8 are based on Volume IV of the 2005 Stormwater
32 Management Manual for Western Washington. A complaint-based response program is
33 also required; this can be combined with the requirement for a citizen complaints/reports
34 telephone number for the illicit discharge detection and elimination program
35 (S5.C.8.b.v.).

36
37 S5.C.7.b.iii requires an inspection and enforcement program for identified sites. This
38 provision is based on comments received on the preliminary draft of this permit. Note
39 that while the permit calls for inspecting 20% of the identified sites each year, Ecology
40 does not expect inspection of 100% of the sites over the 5 year term of the permit.
41 Permittees are free to prioritize sites, categories of land use or geographic areas. Those
42 sites where the property owner denies entry and there is no legal authority to inspect the
43 site may be excluded from onsite inspection, however, the permittee is still responsible
44 for enforcement of applicable local laws related to pollution of evidence of an illicit or
45 contaminated discharge can be documented without entering the property.

1 S5.C.7.b.iv. requires implementation of a progressive enforcement policy to assure
2 compliance with stormwater requirements within a reasonable time period. The reason
3 for this requirement is to ensure permittees' implement the legal authority required in the
4 EPA rules and in S5.C.1 of this permit.

5
6 Training for the source control program, required under S5.C.7.b.v, may be combined
7 with training for the illicit discharge detection and elimination program and operation and
8 maintenance programs.

9
10 S5.C.8 – Illicit Connections and Illicit Discharges Detection and Elimination (IDDE)

11 The requirement for a program to control illicit discharges and improper disposal is
12 drawn from the U.S. EPA stormwater regulations in 40 CFR 122.26(d)(2). The U.S. EPA
13 requirements are based on the provision in the Clean Water Act that municipal
14 stormwater NPDES permits include a requirement to effectively prohibit non-stormwater
15 discharges into the storm sewers.

16
17 S5.C.8.i – Since this permit is a reissuance of existing permits regulating municipal
18 stormwater discharges, this section requires continued implementation of an IDDE
19 program with an implementation deadline concurrent with the effective date of this
20 permit.

21
22 S5.B.8.ii requires each permittee to evaluate and if necessary update existing ordinances
23 or other regulatory mechanisms.

24
25 S5.C.8.ii.(1) - Ecology has determined that the following types of non-stormwater
26 discharges are not likely significant sources of pollutants and therefore need not be
27 addressed in any way by either the ordinances or the SWMP: diverted stream flows,
28 rising ground waters, uncontaminated ground water infiltration, uncontaminated pumped
29 ground water, foundation drains, footing drains, air conditioning condensation, springs,
30 water from crawl space pumps, footing drains, and flows from riparian habitats and
31 wetlands. Ecology decided to also include in this list of non-stormwater discharges (that
32 do not need to be addressed either by the ordinance or in the SWMP) irrigation water
33 from agricultural sources that is commingled with urban stormwater, because in some
34 areas of Washington, agricultural irrigation infrastructure has become part of the MS4
35 and it would be unreasonably burdensome (and not beneficial to water quality) to
36 separate out these discharges.

37
38 S5.C.8.ii.(2) - Water line flushing and hydrant testing are common, required practices in
39 all municipalities. Ecology met with water purveyors to better understand common
40 practices and methods available for containment and reuse of water and for
41 dechlorination of released water. For this permit Ecology established a required
42 concentration of less than or equal to 0.1 ppm chlorine for these discharges and for
43 dechlorinated swimming pool discharges. This concentration is the detection limit for
44 simple, easy-to-use field test kits. Ecology believes that this level of dechlorination is
45 achievable through the use of widely accepted industry practices for dechlorination.

1 Ecology also believes that this level of pretreatment will prevent these discharges from
2 becoming significant contributors of pollutants.

3
4 This section specifies that as long as the municipality is reducing such discharges through
5 public education efforts, water conservation efforts, and minimization of municipal use,
6 the ordinances do not need to prohibit discharges from: lawn watering, landscape
7 irrigation, and street wash water, dust control water and building wash down that does not
8 use detergents.

9
10 S5.C.8.ii.(3) – Note that any category of discharge, including those listed in (1) and (2),
11 must be addressed if it is identified as a significant contributor of pollutants to waters of
12 the State.

13
14 Ecology has maintained the prohibition of individual residential car washing. Ecology
15 believes that the prohibition is appropriate. The requirement to prohibit these discharges
16 does not establish a local priority or define a required approach to addressing these
17 discharges; it merely prevents individual residential car washing from being considered
18 an insignificant discharge. Ecology generally expects municipalities to emphasize public
19 education rather than punitive enforcement to reduce these discharges. Best management
20 practices, such as directing runoff to vegetated areas where it can infiltrate, are easy to
21 implement in order to reduce the environmental impact of these discharges.

22
23 The list of non-stormwater discharges in the federal stormwater rule is used differently in
24 this permit from the way it is applied in the industrial and construction stormwater
25 general permits issued by Ecology. The entire list is conditionally approved at
26 construction and industrial sites (and therefore NPDES permitted).

27
28 Training for the IDDE program, required under S5.C.8.b.iii. and iv., may be combined
29 with training for the source control and operation and maintenance programs.

30
31 S5.C.8.b.vi – The requirement to conduct screening to detect illicit connections comes
32 directly from the EPA rules at 40 CFR 122.26(d)(2)(B). Ecology has specified the
33 screening methods in Illicit Discharge Detection and Elimination: A Guidance Manual
34 for Program Development and Technical Assistance, published by the Center for
35 Watershed Protection in October 2004. The manual is available at <http://www.cwp.org/>.
36 Ecology has reviewed this manual and finds it provides a comprehensive, understandable
37 and reasonable method to detect, trace, identify and fix illicit connections.

38
39 S5.C.8.b.vii. - This section of the permit specifies the timeframes for response to illicit
40 discharges. The timeframes are based on experience of Ecology field staff in conducting
41 similar investigation and enforcement actions. Permittees are encouraged to
42 communicate and coordinate with Ecology regional office staff when investigating or
43 taking enforcement on illicit discharges. However, permittees are expected make a good
44 faith to enforce local rules and ordinances before referring a violation to Ecology.

1 S5.C.8.b.viii. – The requirement to prevent, respond to and clean up spills and improper
2 disposal into the MS4 is drawn directly from EPA rules at 40 CFR 122.26(d)(2)(B). The
3 timeframes for investigating and responding are based on the Tri-County stormwater
4 proposal. Additional information may be available at:
5 <http://www.salmoninfo.org/TriCounty/tricounty.htm>.

6
7 S5.C.9 – Operation and Maintenance Program

8 The permit also includes requirements to achieve adequate long-term operation and
9 maintenance of stormwater facilities. Within one year of the permit's effective date, the
10 permittees are to adopt an ordinance and maintenance standards that are at least as
11 protective as those in the 2005 Western Washington Stormwater Management Manual.
12 The maintenance schedules for stormwater facilities that are included in the permit were
13 originally drafted with the participation of local government stormwater managers during
14 the effort to develop the "Tri-County" stormwater proposal as part of a response to the
15 Endangered Species Act listing of Chinook salmon. Additional information may be
16 available at: <http://www.salmoninfo.org/TriCounty/tricounty.htm>.

17
18 Within one year, the permittees also must have a schedule to inspect all facilities
19 regulated by the permittee at least once during the permit term. Within two years,
20 permittees are to inspect new facilities every 6 months for 1 to 2 years after subdivision
21 approval. Within four years, permittees are to develop a schedule to perform inspections
22 annually unless sufficient data exist to justify a different frequency for ensuring
23 compliance with the maintenance standards.

24
25 Within 2 years, the permittee must begin inspecting all facilities owned or operated by
26 the permittee annually. Within 2 years, they are to conduct spot checks after major
27 storms. These schedules allow the permittees time to expand their inspection and
28 maintenance programs if they are not already at the levels required by the permit. The
29 inspection program should be designed to inspect all sites, and achieve at least a 95%
30 inspection ratio.

31
32 The maintenance inspection frequencies may be changed where there are records or a
33 formal affidavit attesting to maintenance experience. Ecology recognizes that facilities
34 require maintenance at different frequencies depending circumstances such as
35 surrounding land use, soils, type and age of facility.

36
37 S5.C.9b.iv. – This section requires annual inspection and maintenance of catchbasins to
38 remove accumulated sediment, trash, oily residue and other materials captured by
39 catchbasins. Two strategies for conducting inspections are allowed in the permit. In the
40 first a subset of catch basins are inspected and based on that information all catchbasins
41 in that conveyance are cleaned. An alternative method of inspecting all catchbasins and
42 then cleaning individual basins as needed is also allowed. The first strategy for
43 catchbasin inspection and cleaning is based on the Tri-County stormwater proposal, the
44 second is a recommendation from the City of Seattle. Inspection frequencies for
45 catchbasins may be modified similarly to other stormwater facilities.

1 The section also requires proper disposal of decant water in accordance with the
2 requirements in Appendix 6. The street waste liquids or decant water is generated in the
3 process of maintaining Stormwater BMPS. The BMPs capture settleable solids from
4 stormwater runoff and may also minimize the discharge of oily runoff by retaining
5 floatable oils in the BMP. The settled solids typically have high concentrations of
6 adsorbed metals, oils and grease. The agitation involved in removing the solids from
7 catch basins results in the resuspension of the fine fraction of the sediments. The
8 pretreatment and treatment requirements are designed to remove the fine sediment and
9 sheen causing oils (if any), from the decant water before it reaches the receiving water.

10
11 In previous permits a Spill Control Catch Basin was specified as a pretreatment
12 requirement to remove oil. Ecology has determined that such devices are not sufficiently
13 reliable to make the presumption that they will function reliably enough to prevent oily
14 sheens in receiving waters (see Volume V, page 11-1 of the Western Washington
15 Stormwater Manual). Therefore the permit requirement for oil treatment is only imposed
16 if oil is discharged. Thus the permittee may use any BMP (e.g. spill control catch basin,
17 or decant methods) that can be demonstrated to prevent the discharge of sheen causing
18 oily discharges to eliminate the need for an approved oil water separator, as part of the
19 treatment train.

20
21 S5.C.9b.vi. – The permit requires implementation of practices to reduce stormwater
22 impacts associated with the permittee's parking lots, streets, roads and highways. The
23 requirement to implement such a program is found in EPA rules at 40 CFR
24 122.26(d)(2)(iv)(3). The following guidance documents are the basis for this requirement
25 and may be used to develop this program:

- 26 • Ecology guidance for street waste disposal (Appendix 6 to this permit for
27 liquids and Volume IV of the 2005 Stormwater Management Manual for
28 Western Washington for street waste solids).
- 29 • Regional Road Maintenance ESA Program Guidelines, developed by the Tri-
30 County Road Maintenance Technical Working Group.
- 31 • The 2005 Stormwater Management Manual for Western Washington, Vol. II
32 Construction Stormwater Pollution Prevention and Vol. IV Source Control.
- 33 • Recommendations on managing ditches for water quality benefit contained in
34 the report titled A survey of Ditches along County Roads for their potential to
35 affect Storm Runoff Water Quality, published by the Center for Water and
36 Watershed Studies at the University of Washington.

37
38
39 S5.C.9b.vii. – As land owners, the permittees have the ability to directly control the
40 quality of stormwater runoff from their own practices. This section of the permit requires
41 each permittee to establish and implement policies and procedures to reduce pollutants
42 from lands they own or maintain.

43
44 Of particular concern are the selection and application of insecticides and herbicides.
45 Insecticides and herbicides (collectively termed pesticides) have been detected in all
46 rivers, lakes and streams sampled across the United States by the US Geological Survey

(USGS). In King County twenty-three pesticides were detected in water from urban streams during rainstorms and the concentrations of five of these pesticides were at levels that pose danger to aquatic life. [22 20 U.S. EPA. November 2000. *Our Built and Natural Environments: A Technical Review of the Interactions between Land Use, Transportation and Environmental Quality* 21 May, Christopher W. 1996. *Assessment of Cumulative Effects of Urbanization on Small Streams in the Puget Sound Lowland Ecoregion: Implications for Salmonid Resource Management*. PhD Dissertation, University of Washington. 22 USGS Fact Sheet 097-99. April 1999.] Since it is difficult or impossible to remove pesticides from water, Ecology is focusing on the use of integrated pest management plans as a way to reduce both the need and use of pesticides.

The definition for Integrated Pest Management is given in RCW 17.15 as:

“Integrated pest management” means a coordinated decision-making and action process that uses the most appropriate pest control methods and strategy in an environmentally and economically sound manner to meet agency programmatic pest management objectives. The elements of integrated pest management include:

(a) Preventing pest problems;

(b) Monitoring for the presence of pests and pest damage;

(c) Establishing the density of the pest population, that may be set at zero, that can be tolerated or correlated with a damage level sufficient to warrant treatment of the problem based on health, public safety, economic, or aesthetic thresholds;

(d) Treating pest problems to reduce populations below those levels established by damage thresholds using strategies that may include biological, cultural, mechanical, and chemical control methods and that must consider human health, ecological impact, feasibility, and cost-effectiveness; and

(e) Evaluating the effects and efficacy of pest treatments.

Reducing the use of pesticides will reduce the risk of the chemicals being carried to streams by stormwater. The methodology has been adopted by many sectors of agriculture. These are reasonable and prudent steps to use when applying chemicals designed to kill plant or animal life. Following them will minimize the risk of discharging pesticides into the MS4.

Excess nutrient entering water ways is also a large and significant urban source of pollution. An analogous plan to manage nutrients will ensure that nutrients are only added to the soils when necessary and in the amounts needed. At a minimum it is expected that permittees only apply fertilizer consistent with recommendation based on soil tests.

1 Landscape maintenance, trash management and building cleaning are routine practices
2 that can affect stormwater quality. They are also practices that are relatively simple to
3 manage such that pollutants are avoided or minimized. BMPs for these activities are
4 included in Volume IV of the 2005 Stormwater Management Manual for Western
5 Washington.

7 S5.C.9b.viii. – Training for the operation and maintenance program may be combined
8 with the training for source control and IDDE programs.

10 S5.C.9b.ix. – Ecology has determined that activities at certain sites owned or operated by
11 permittees are potentially similar to activities at sites regulated under the Industrial
12 Stormwater General Permit. For this reason this provision of the permit calls for
13 developing Stormwater Pollution Prevention Plans (SWPPPs) for these sites. A SWPPP
14 is a documented plan to implement measures to identify, prevent, and control the
15 contamination of discharges of stormwater to surface or ground water. Guidance for
16 developing SWPPPs is available at
17 <http://www.ecy.wa.gov/programs/wq/stormwater/industrial/index.html#swppp>. Generic
18 SWPPPs for sites grouped by type of activity are encouraged.

20 S5.C.10 - Public Education and Outreach

21 The requirement to implement a public education program is based on EPA rules for both
22 the Phase I and Phase II municipal stormwater permit programs, and the 2000 Puget
23 Sound Water Quality Management Plan. Permittees must implement a public education
24 program to reduce or eliminate behaviors and practices that cause or contribute to adverse
25 impacts of stormwater discharges on water bodies. To do this they must identify the
26 steps that the public can take to reduce pollutants in storm water runoff. Permittees are
27 encouraged to target all audiences, however, the minimum measures require:

- 29 ➤ Targeting all of listed audiences and actions no later than one year after the
30 effective date of the permit.
- 32 ➤ Measurable improvements in each target audiences's understanding of the
33 problem and what they can do to solve it.
- 35 ➤ Measurable improvements in the percentage of each target audience regularly
36 carrying out the intended action or behavior change.
- 38 ➤ Measure understanding and adoption of the targeted behaviors.

40 Permittees may use storm water educational materials provided by Ecology, Tribes, EPA,
41 environmental, public interest or trade organizations, or other MS4s. Many materials are
42 available from Ecology online at:

43 <http://www.ecy.wa.gov/programs/wq/stormwater/index.html>

45 The subsets are grouped by audience and targeted subject areas. Briefly, the subsets
46 include:

1

Audience	Targeted Subject Area(s)
General public	Water quality, impervious surfaces and reducing stormwater impacts through use of source control BMPs
Homeowners, landscapers and property managers	Yard care techniques protective of water quality
Homeowners, landscapers and property managers	BMPs for use and storage of pesticides and fertilizers
General public and businesses	BMPs for use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps and other hazardous materials
Engineers, contractors, developers, review staff and land use planners	Technical standards for stormwater site and erosion control plans
Engineers, contractors, developers, architects, landscapers, realtors and home buyers	Low Impact Development techniques, including site design, pervious paving, retention of forests and mature trees.
General public and small businesses	Impacts of illicit discharges (this overlaps with IDD&E requirement)
General public	Involvement with environmental stewardship activities

2

3

4 Permittees are encouraged to tailor outreach programs to address the viewpoints and
5 concerns of the communities they serve, particularly minority and disadvantaged
6 communities, as well as any special concerns relating to children.

7

8 S6 – Stormwater Management Program for Co-Permittees and Secondary Permittees

9

10 This section of the permit applies to public entities other than Cities, Towns and Counties
11 such as ports, prison complexes, parks and recreation districts, public schools including
12 universities, irrigation districts, flood control districts, or diking and drainage districts
13 that own or operate a regulated municipal separate storm sewer system.

14 With this section of the permit, Ecology is attempting to describe a Stormwater
15 Management Program (SWMP) that makes sense for the wide range of entities that are
16 not Cities, Towns, or Counties, but that are subject to coverage under this permit. These
17 Permittees, referred to as Secondary Permittees, generally do not have the same legal
18 authority as Cities, Towns and Counties. The populations served by Secondary
19 Permittees at least partly coincide with the populations of the permitted Cities, Towns
20 and Counties. Ecology encourages Secondary Permittees to seek cooperative agreements
21 with their local jurisdiction(s) to assist in implementation of the complete SWMP.
22 Ecology believes the SWMP for Secondary Permittees should focus on:

- 23 • The non-enforcement aspects of illicit detection and elimination (and rely on the
24 local jurisdiction for the enforcement aspects),

- Construction and post-construction stormwater management for the Secondary Permittee's projects, and
- Pollution prevention and good housekeeping for the municipal operations of the Secondary Permittee.

Permittees are required to track, evaluate and document the actions associated with the SWMP required by the permit. Pursuant to S9 this information is required to be tracked and compiled in an annual report to Ecology. Annual report forms for Secondary Permittees are located in Appendix 4 of the permit.

S6.B – Coordination

The permit encourages Secondary Permittees to include coordinate their SWMPs with other entities within or adjacent to their MS4. The permit requires coordination among departments of the Secondary Permittee to ensure compliance with the permit.

S6.C – Legal Authority

Legal authority to control discharges into a Permittee's storm sewer system is critical for compliance. To the extent allowable under state and federal law the permit requires each Secondary Permittee to operate with sufficient legal authority which authorizes the Secondary Permittee to control discharges into and from their MS4. The legal authority may be demonstrated by a combination of statutes, ordinances, permits, contracts, orders, and interagency agreements. The legal authority must be sufficient to allow the Secondary Permittee do all of the applicable activities listed in S6.D, E and F of the permit.

S6.D – SWMP for the Port of Seattle and Port of Tacoma

Ecology has determined that special consideration is needed for the Ports of Seattle and Tacoma, distinguishing them from the broader group of Secondary permittees such as diking and drainage districts and public universities. These ports are both located on urban bays with documented water quality and sediment contamination problems that may be linked to stormwater discharges. The infrastructure in both Seattle and Tacoma is fairly old and the MS4s are heavily interconnected between each port and the respective city. Also, both ports lease properties to tenants, of whom many, but not all, are required to have coverage under the Industrial Stormwater General Permit. For these reasons this permit establishes SWMP components that are specific to these town entities.

S6.D.1 Mapping and Documentation

To adequately control stormwater discharges it is important to know the location of outfalls and the conveyances that flow to those outfalls. This requirement is also intended to enable the ports to understand the extent of interconnection between the ports' and cities' systems. The mapping requirement for these ports is consistent with the parallel requirement for the cities of Seattle and Tacoma. The permit recognizes nation security concerns may limit the ports' ability to release maps to the public.

S6.D.2 Source Control in Existing Developed Areas

Ecology has determined that implementation Stormwater Pollution Prevention Plans is an effective way to reduce the discharge of pollutants to the maximum extent practicable at

existing developed sites. For this reason this provision of the permit calls for developing Stormwater Pollution Prevention Plans (SWPPPs) for sites that are potentially pollutant generating, and that do not already have coverage under the Industrial Stormwater permit.. A SWPPP is a documented plan to implement measures to identify, prevent, and control the contamination of discharges of stormwater to surface or ground water. Guidance for developing SWPPPs is available at <http://www.ecy.wa.gov/programs/wq/stormwater/industrial/index.html#swppp>. Generic SWPPPs for sites grouped by type of activity are encouraged.

S6.D.3 Operation and Maintenance Program

Proper maintenance and operation of stormwater BMPs is necessary for maintaining pollutant removal efficiency and hydraulic capacity of the system. Lack of maintenance can increase the pollutant load of stormwater discharges. This section of the permit requires preparation of an O&M manual that establishes maintenance standards that are consistent with standards required for the cities of Seattle and Tacoma. Inspections, maintenance actions, training and recordkeeping are required as well to ensure implementation of the maintenance standards.

S6.D.4. Education Program

Ecology believes that tenants and port employees may not be as effectively served by the local jurisdiction's public education and outreach program, therefore this condition is included.

S6.D.5 Monitoring Program

See the discussion of the monitoring program under Special Condition S8.

S6.D.6 Construction Site Stormwater Runoff Control

The purpose of this SWMP component is to prevent sediment and other pollutants from entering the MS4 during the construction phase of development projects. In general, this section relies on Secondary Permittees obtaining coverage under, and complying with, the *Construction Stormwater General Permit* administered by Ecology for their own construction projects.

S6.D.7 Post-construction stormwater management for new development and redevelopment

The purpose of this SWMP component is to prevent and reduce the amount of pollutants entering the MS4 following the construction phase of development projects. The Minimum Technical Requirements in Appendix 1 of the permit provide a basis for selecting and implementing appropriate best management practices (BMPs) to accomplish this through design approaches, structural treatment technologies, and operation and maintenance practices.

S6.E – SWMP for King County as a Co-Permittee

There are 2 places in the City of Seattle where projects to separate stormwater from sanitary sewer lines has resulted in King County assuming responsibility for stormwater discharges - the Lander and Densmore basins. King County co-applied with the city for

1 coverage of these discharges. A Memorandum of Agreement between the City and the
2 County dated September 25, 1995 forms the basis for the actions the County takes to
3 control stormwater in these basins. This section of the permit recognizes that Agreement,
4 and calls for continued implementation of actions that are consistent with the
5 requirements in S5 of this permit.
6
7

8 S6.F – SWMP for all other Secondary permittees

9 This section of the permit applies to public entities other than cities, towns and counties
10 such as ports, prison complexes, parks and recreation districts, public schools including
11 universities, irrigation districts, flood control districts, or diking and drainage districts
12 that own or operate a regulated municipal separate storm sewer system.

13 This section of the permit describes a Stormwater Management Program (SWMP) for a
14 wide range of entities that are not cities, towns, or counties, but that are subject to
15 coverage under this permit. These Permittees, referred to as Secondary Permittees,
16 generally do not have the same legal authority as cities, towns and counties. The
17 populations served by Secondary Permittees at least partly coincide with the populations
18 of the permitted cities, towns and counties. Ecology encourages Secondary Permittees to
19 seek cooperative agreements with their local jurisdiction(s) to assist in implementation of
20 the complete SWMP. Ecology believes the SWMP for Secondary Permittees should
21 focus on:

- 22 • The non-enforcement aspects of illicit detection and elimination (and rely on the
23 local jurisdiction for the enforcement aspects),
- 24 • Construction and post-construction stormwater management for the Secondary
25 Permittee's projects, and
- 26 • Pollution prevention and good housekeeping for the municipal operations of the
27 Secondary Permittee.

28 Permittees are required to track, evaluate and document the actions associated with the
29 SWMP required by the permit. Pursuant to S9 this information is required to be tracked
30 and compiled in an annual report to Ecology. Annual report forms for Secondary
31 Permittees are located in Appendix 4 of the permit.
32
33

34 SWMP Components for all other Secondary Permittees

36 S6.F.1 Public education and outreach

37 Because the population served by most Secondary Permittees will generally be served by
38 the public education and outreach efforts of the local jurisdiction, Ecology determined
39 that the most useful supplement to those education and outreach efforts would be to label
40 the Secondary Permittee's storm drain inlets. Ecology believes that ports and universities
41 have tenants and residents that may not be as effectively served by the local jurisdiction's
42 public education and outreach program, therefore condition S6.C.1.b is included. Where
43 local jurisdictions' public education and outreach efforts do effectively target and reach
44 these tenant and residential populations, ports and universities are not expected to
45 duplicate those efforts.
46

1 S6.F.2 Public involvement and participation

2 Secondary Permittees have the same responsibilities as cities, towns and counties to make
3 their SWMPs available to the public and to involve the population they serve in the
4 development of the SWMP.

5
6 Each secondary permittee is required to publish a public notice in the local newspaper
7 and solicit public review of their SWMP no later than 180 days prior to the expiration
8 date of the permit. Copies of the public notice and SWMP must be provided to Ecology.
9 A sample public notice is provided in the Notice of Intent form online from Ecology at:

10 <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/secondary.html>

11 The latest updated version of the SWMP must be made available online to the public if
12 the Secondary Permittee maintains a website, otherwise the SWMP may be posted on the
13 local jurisdiction's website or Ecology's.

14
15 S6.F.3 Illicit discharge detection and elimination (IDDE)

16 IDDE is one of the most important components of the SWMP for any Permittee to reduce
17 pollutants in discharges from their MS4. This section describes the necessary elements of
18 an IDDE program for Secondary Permittees. Federal regulations define an illicit
19 discharge as "any discharge to an MS4 that is not composed entirely of stormwater
20 runoff". Non-stormwater discharges are illicit because MS4s are not designed to accept,
21 process, or discharge such wastes. Illicit discharges enter the MS4 through deliberate or
22 mistaken, direct or indirect, illicit connections or illegal dumping. Progress toward
23 developing and implement the program must be reported in the annual report.

24 The Center for Watershed Protection has researched cost effective and efficient discharge
25 detection techniques currently in use around the country. Their findings are synthesized
26 into specific guidelines on illicit discharge identification and removal in the *Illicit*
27 *Discharge Detection and Elimination Guidance Manual*, a comprehensive manual that
28 outlines practical, low cost, and effective techniques. The final version of the manual can
29 be downloaded for free at: [Illicit Discharge Detection and Elimination: A Guidance](#)
30 [Manual for Program Development and Technical Assessments](#).

31 Secondary Permittees should focus their efforts on mapping their stormwater systems,
32 developing and implementing appropriate IDDE policies and procedures, and training
33 their staffs. Some Secondary Permittees will be able to rely on the local jurisdiction for
34 enforcement actions; others will have to develop enforcement programs and implement
35 appropriate enforcement actions to the extent that they have legal authority.

36
37 S6.F.4 Construction site stormwater runoff control

38 The purpose of this SWMP component is to prevent sediment and other pollutants from
39 entering the MS4 during the construction phase of development projects. In general, this
40 section relies on Secondary Permittees obtaining coverage under, and complying with,
41 the *Construction Stormwater General Permit* administered by Ecology for their own
42 construction projects. To the extent that they have the legal authority, Secondary
43 Permittees must also require other entities discharging to their MS4 to obtain and comply

1 with the Minimum Technical Requirements in Appendix 1 (of the permit), Core Element
2 #2 during the construction phase of their projects.

3 4 S6.F.5 Post-construction stormwater management for new development and 5 redevelopment

6 The purpose of this SWMP component is to prevent and reduce the amount of pollutants
7 entering the MS4 following the construction phase of development projects. The
8 Minimum Technical Requirements in Appendix 1 provide a basis for selecting and
9 implementing appropriate best management practices (BMPs) to accomplish this through
10 design approaches, structural treatment technologies, and operation and maintenance
11 practices.

12 13 S6.F.6 Pollution prevention and good housekeeping for municipal operations

14 The municipal operation and maintenance (O&M) plan required to be developed under
15 this component of the SWMP is one of the most important programmatic activities for
16 any Permittee to reduce pollutants in discharges from their MS4. This section of the
17 permit requires Secondary Permittees to evaluate their day-to-day activities and evaluate
18 what BMPs they can implement to reduce stormwater pollution from those activities.
19 Employee training is a critical aspect of this SWMP component. Training can be done in-
20 house or by outside consultants, depending on the size of staff, area served and expertise
21 available. The training must be on-going as needed and reported in the annual report.
22 Ecology and EPA both provide links to training materials and information on their
23 websites.

24 25 26 S7- Total Maximum Daily Load Allocations

27
28 Under some circumstances, when the water quality of a water body is impaired, the
29 federal Clean Water Act requires States to set limits on the amount of pollutants that the
30 water body receives from all sources. States may also set limits on pollutant loads when
31 water bodies are threatened. These limits are known as Total Maximum Daily Loads
32 (TMDLs). TMDLs differ from commonly used technology-based or water quality-based
33 numeric limits for individual discharges. A TMDL is developed through a defined
34 process through which the maximum amount of a pollutant that may be discharged from
35 all sources to a water body without causing violations of water quality standards is
36 identified. Then pollutant control strategies are developed to keep the pollutant loading
37 below that level. The strategies include numeric Waste Load Allocations (WLAs) for
38 NPDES permitted dischargers and Load Allocations (LAs) to control the loads from
39 nonpoint sources.

40 Stormwater discharges covered under this permit are required to implement actions
41 necessary to achieve the pollutant reductions called for in applicable TMDLs.

42 Applicable TMDLs are TMDLs which have been approved by the EPA before the
43 issuance date of the permit or which have been approved by the EPA prior to the date the
44 permittees application is received by Ecology. A list of all applicable TMDLs is included
45 in Appendix B to this Fact Sheet. Information on Ecology's TMDL program is available
46 on Ecology's website at www.ecy.wa.gov/programs/wq/tmdl.

1 All TMDLs approved by EPA before February 15, 2006 were reviewed by Ecology to
2 determine whether stormwater including municipal stormwater sources were identified in
3 the TMDL. When most of these TMDLs were developed, municipal stormwater was
4 considered a subset of non-point dischargers, rather than a permitted discharge. As a
5 result, very few TMDLs statewide contain requirements for municipal stormwater
6 sources. Only a few of the TMDLs completed to date have established load allocations
7 or waste load allocations for municipal stormwater discharges covered under this permit.
8 Ecology is interpreting TMDL requirements as follows:

- 9 • For TMDLs where stormwater was not identified as a source of the pollutants of
10 concern, or if all of the sources were defined in the TMDL, Ecology considers the
11 MS4 not to be a significant contributor of pollutants.
- 12 • Where stormwater was identified as a source of pollutants and the TMDL or
13 implementation plans developed to support the TMDL identified control measures
14 were less than or equivalent to the requirements of this permit, Ecology sets a
15 narrative effluent limit: “compliance with the permit compliance constitutes
16 compliance with the TMDL.”
- 17 • If stormwater was identified as a source of pollutants and specific WLAs, LAs or
18 control measures were established, Ecology must develop effluent limits in
19 addition to the other requirements of the permit. These effluent limits may be
20 narrative or numeric depending on the control measures set by the TMDL or
21 implementation plans.

22 Where a TMDL or the detailed implementation plan developed for the TMDL identifies
23 actions or activities beyond what is required by this permit, Ecology has identified the
24 additional requirements in Appendix 2 of the permit for all TMDLs approved by EPA
25 prior to February 15, 2006. Appendix 2 of the permit lists the cities and counties affected
26 by the TMDL. Secondary permittees that are subject to additional TMDL related
27 requirements will be notified at the time of permit coverage.

28 When TMDL related monitoring is required, permittees are required to develop a quality
29 assurance project plan. Quality assurance project plans (QAPPs) must be submitted to
30 Ecology for review and approval. For detailed guidance on writing QAPPs, see
31 *Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies*
32 (ECY Pub. No. 04-03-030) available on Ecology’s website at
33 <http://www.ecy.wa.gov/biblio/0403030.html>.

34 Implementation of all TMDLs approved by EPA prior to the date of issuance of this
35 permit, or prior to the date of application, is required by all Permittees. Appendix 2 will
36 be updated in the final permit. For the Phase I permit, all cities and counties, and King
37 County as a Co-Permittee, will be covered at the time of permit issuance.

38
39 Ecology did not require automatic implementation of TMDLs completed after a
40 Permittee is covered under this permit because doing so would deny the opportunity to
41 appeal additional permit requirements based on the new TMDL. For TMDLs that are
42 approved by EPA after the permit is issued, Ecology may establish TMDL-related permit
43 requirements through a formal permit modification or through the issuance of an
44 administrative order. Ecology’s decision to enforce requirements of TMDLs completed
45 after the issuance of the permit will be based on the determination that implementation of

actions, monitoring or reporting necessary to demonstrate reasonable further progress toward achieving TMDL waste load allocations, and other targets, are not occurring and must be implemented during the term of the permit. For this reason, Permittees are encouraged to participate in development of TMDLs within their jurisdiction and to begin implementation where appropriate.

S8. Monitoring Background

The federal stormwater rules require municipalities to propose a stormwater monitoring program for the term of the permit (40 CFR Part 122.26(d)(2)(iii)(D)). However, few specific requirements of such programs are listed. In the preamble to the federal rule (See pages 48049 - 48052 of the Federal Register, Volume 55, No. 222, November 16, 1990) U.S. EPA indicates that they favor ... " a permit scheme where the collection of representative data is primarily a task that will be accomplished through monitoring programs during the term of the permit." In the same text, they indicate that "an estimate of annual pollutant loading associated with discharges from municipal stormwater sewer systems is necessary to evaluate the magnitude and severity of the environmental impacts of such discharges and to evaluate the effectiveness of controls which are imposed at a later time."

In the first round of municipal stormwater permits issued in 1995, Ecology established four monitoring objectives:

- a) Estimate concentrations and loads from representative areas or basins to be used in evaluating overall program effectiveness.
- b) Evaluate the effectiveness of selected Best Management Practices.
- c) Identify specific sources of pollution; and
- d) Identify the degree to which stormwater discharges are impacting selected receiving waters and sediments.

At that time, it was thought that a monitoring program to adequately cover all the objectives in the first permit would be overwhelming. Therefore, Ecology allowed the permittees to propose monitoring programs intended to achieve one or more of these objectives based upon priorities that they established for their programs. Now, Ecology finds that all the above monitoring objectives remain applicable in the long run, regardless of the permittees' initial priorities, and despite the results of permittees' monitoring to date. However, for this permit term, and under this permit condition, Ecology will require monitoring programs that focus on the first two objectives. Accomplishment of the third objective is partially met by an illicit detection and removal program, which is covered by permit condition S5.C.8. Monitoring to accomplish the fourth objective will not be included in this permit. Instead, Ecology intends to rely on its own monitoring programs, as may be coordinated and supplemented by local government monitoring, to accomplish the objective.

Monitoring programs to meet the requirements of this section may include clustering such that more than one objective is met through an individual monitoring "project."

1
2 The primary objective of the monitoring program is to provide a feedback loop for
3 adaptive management of the permittees' stormwater management programs and the
4 municipal stormwater permit. Adaptive management will be implemented through future
5 permits or permit modifications.
6

7 A. Stormwater monitoring:

8 Knowledge of pollutant loads and of average event mean concentrations from
9 representative areas drained by the municipal storm sewer systems are necessary to gauge
10 whether the comprehensive stormwater management programs are making progress
11 towards the goal of reducing the amount of pollutants discharged and protecting water
12 quality. Ecology intends this type of monitoring to continue well beyond this permit
13 term. The number of samples per year, 75% of qualifying events, up to a maximum of
14 15, is intended to establish a sufficient data base from which to discern annual and
15 seasonal loading trends over a long time period. Based upon monitoring experiences by
16 the City of Tacoma, Ecology anticipates that collecting data from 15 events per year is
17 readily achievable.
18

19 The permit calls for each permittee selecting 3 sites representing different land uses. The
20 Ports are to select one site. To "represent" a particular land use, no less than 80% of the
21 area served by the outfall or conveyance should be classified as having that land use.
22 There is some risk in designating so few numbers and types of outfalls for this long-term
23 monitoring. The outfalls selected may not be adequately "representative" of what is
24 being achieved throughout the municipal storm sewer system. Results at these sites can
25 over-estimate or under-estimate what is happening system-wide. To reduce that error,
26 Ecology will consider extending this type of monitoring to Phase II municipal stormwater
27 permittees in the second round of their permits. The second round is scheduled for
28 issuance in 2011. The combination of intensive monitoring at a number of outfall
29 locations throughout the state should provide a sufficient data set from which to draw
30 conclusions about the effectiveness of programs on a region-wide basis.
31

32 Such data may also prove useful for establishing Water Clean-up Plans (TMDLs) for
33 waters not achieving water quality standards. "Having statistically significant data sets at
34 regional, seasonal, and land use levels enables modelers to use the information for more
35 sensitive calibration of models that may be used for pollutant load allocations." (Pitt et al)
36 Pollutants to be monitored were selected based upon their known presence in stormwater,
37 their potential for adverse impacts, or their value in providing necessary supporting
38 information.
39

40 TSS and turbidity are measures of particulates in the discharges. Particulates in receiving
41 waters can change sediment habitat, disrupt breathing, feeding, and other behaviors in
42 biota, and can be a vehicle for the entrance of toxicants into the ecosystem. TSS sources
43 are eroding soils and organic and inorganic debris.
44

45 In western Washington, where hardness levels are often very low, metals concentrations
46 in urban stormwater can frequently exceed water quality standards by large amounts.

1 Elevated metals concentrations can impact salmonid behaviors, and can have immediate
2 lethal impacts. Vehicles are a major source of metals. Sources of copper include the
3 wear of brake pads, bearings and bushings and other moving engine parts, and tailpipe
4 emissions. Copper is also included in pesticide formulations. Tires, motor and hydraulic
5 oils are major sources of zinc. Galvanized materials exposed to the weather also
6 contribute high concentrations of zinc to stormwater runoff. Cadmium sources include
7 tires and diesel exhaust.

9 There are many polycyclic aromatic hydrocarbons (PAH's) that are associated with
10 vehicle operation and with road and parking lot construction and maintenance. A recent
11 study by the USGS in Austin, Texas identified coal tar and asphalt emulsion sealcoats as
12 the major source of PAH-contaminated sediment in local waterbodies. Water column
13 concentrations of PAH's as low as 1 part per billion (or, 1 microgram per liter) have
14 caused decreased survival of salmonid embryos. Ecology has established marine
15 sediment standards for PAH's. Those standards have been exceeded in various urban
16 embayments around Puget Sound. Stormwater has been implicated as a contributor.
17 Recent surveys of PAH's in sediments throughout Puget Sound reveal that background
18 PAH concentrations are increasing virtually everywhere, making PAH's a significant
19 threat to ecosystem health.

21 The pesticides listed in the permit have all been detected with significant frequency in
22 urban streams around King County based on a study conducted by the USGS, Ecology,
23 and King County (1999). These results are consistent with results obtained in other areas
24 of the country. The data collected in the King County study showed that some instream
25 concentrations of insecticides exceed maximum recommended concentration limits for
26 protection of aquatic life established by the National Academy of Sciences and National
27 Academy of Engineering (1973), or the Ministers of Health Canada and Environment
28 Canada (1995). Most instream samples of the insecticide, Diazinon, exceeded chronic
29 aquatic life criteria recommended by USEPA (1998). Surface water runoff is the
30 primary vehicle for transport of pesticides into these waters. Homeowner and commercial
31 applications of these pesticides are the primary sources.

33 Nutrients, primarily phosphorus and nitrogen compounds, are often present in stormwater
34 in concentrations that make significant contribution to eutrophication of streams, lakes,
35 and estuaries. Stimulation of nuisance algae blooms and reduction in dissolved oxygen
36 levels leading to stresses and sometimes death of sensitive organisms can occur.

38 Various studies throughout the country, and locally, have documented stormwater
39 toxicity to test organisms such as daphnids, amphipods, bacteria, and fish. The causes of
40 toxicity have included various pesticides and metals. Recently, studies confirming higher
41 rates of pre-spawn mortality of adult salmonids returning to urban streams as compared
42 to mortality rates in rural streams has raised awareness and concern about stormwater
43 toxicity. Performing a toxicity test on the "seasonal first-flush storm" should give
44 generally give us an annual worst case scenario. The build-up of pollutants on the urban
45 landscape during the dry season (July – Sept.) can result in higher concentrations and
46 loads from discharge sites when compared to concentrations and loads from smaller,

more frequent storms throughout the winter. Generally, receiving waters have less volume of water available for dilution of those pollutants during this time, and the water is at a warmer temperature. These receiving water conditions increase the potential for toxic conditions to the biota.

The monitoring program includes grab samples for total petroleum hydrocarbons. Grab sampling from the stormwater surface is indicated because of the volatile nature of some of the compounds in this broad class of compounds. The presence of low levels of petroleum hydrocarbons that concentrate at the surface of waters can have impacts on biota that reside in or frequent the surface.

Grab samples for fecal coliform bacteria are also indicated. Fecal coliform bacteria are present in virtually all stormwater discharges. Sources include urban wildlife (birds, rats, mice, raccoons), domestic wildlife (dogs and cats), illegal cross-connections of sanitary sewers from residences and businesses, and onsite sewage disposal system failures. Because the urban landscape is dominated by impervious surfaces and nearly impervious surfaces, defecation on those surfaces is quickly washed into the storm drainage system. Fecal coliform bacteria are the most common reason for a surface water to be listed as not attaining water quality standards.

Finally, 1 to 3 sediment samples are to be collected per year per site. The sediment is to be collected in sediment traps placed close to the discharge location, but in a place that is readily accessible. The sediment analytes are those that have a history of association with stormwater discharges, are found in urban embayments, have a marine sediment quality standard, or that provide necessary support information (e.g., total organic carbon).

List of parameters to measure in accumulated sediment	
CHEMICAL PARAMETER MG/KG DRY WEIGHT (PARTS PER MILLION (PPM) DRY) ARSENIC 57 CADMIUM 5.1 CHROMIUM 260 COPPER 390 LEAD 450 MERCURY 0.41 SILVER 6.1 ZINC 410 CHEMICAL PARAMETER MG/KG ORGANIC CARBON (PPM CARBON) LPAH 370 NAPHTHALENE 99 ACENAPHTHYLENE 66 ACENAPHTHENE 16 FLUORENE 23 PHENANTHRENE 100 ANTHRACENE 220 2-METHYLNAPHTHALENE 38	CHEMICAL PARAMETER UG/KG DRY WEIGHT (PARTS PER BILLION (PPB) DRY) PHENOL 420 2-METHYLPHENOL 63 4-METHYLPHENOL 670 2,4-DIMETHYL PHENOL 29 PENTACHLOROPHENOL 360 BENZYL ALCOHOL 57 BENZOIC ACID 650

HPAH 960 FLUORANTHENE 160 PYRENE 1000 BENZ(A)ANTHRACENE 110 CHRYSENE 110 TOTAL BENZOFLUORANTHENES 230 BENZO(A)PYRENE 99 INDENO (1,2,3,-C,D) PYRENE 34 DIBENZO (A,H) ANTHRACENE 12 BENZO(G,H,I)PERYLENE 31 1,2-DICHLOROBENZENE 2.3 1,4-DICHLOROBENZENE 3.1 1,2,4-TRICHLOROBENZENE 0.81 HEXACHLOROBENZENE 0.38 DIMETHYL PHTHALATE 53 DIETHYL PHTHALATE 61 DI-N-BUTYL PHTHALATE 220 BUTYL BENZYL PHTHALATE 4.9 BIS (2-ETHYLHEXYL) PHTHALATE 47 DI-N-OCTYL PHTHALATE 58 DIBENZOFURAN 15 HEXACHLOROBUTADIENE 3.9 N-NITROSODIPHENYLAMINE 11 TOTAL PCB'S 12 TOC	
--	--

Ecology has developed a cost estimate (Appendix C of this Fact Sheet) for the field and laboratory work that will be necessary to meet this monitoring requirement.

B. Stormwater Program Effectiveness Monitoring:

This part of the monitoring requirements requires the permittees to select 2 specific aspects of their stormwater management program for evaluation. They are asked to evaluate the effectiveness of a specific action; and to evaluate the effectiveness of achieving a targeted environmental outcome. In both cases, monitoring of stormwater or receiving water characteristics is necessary. Monitoring of indirect measures of success such as improvements in regulatory processes, quality or timing or programmatic actions, or changes in behavior may also be accomplished as an indirect indicator of effectiveness.

The permit lists 10 major components to a stormwater management program. To implement any single component requires an administrative structure and an implementation strategy of multiple parts. The “specific action” monitoring is aimed at having the permittees establish a feedback loop for a specific component or part of a component. The intent is to do sufficient investigation to determine if a specific action is making an effective contribution to achieving the overall stormwater program and permit goals. Examples could include: improvements in stormwater quality or quality of sediments in stormwater discharges; reduction in frequency of high flows; reduction in frequency of spills.

The “targeted outcome” monitoring is intended to establish a feedback loop concerning the effectiveness of a subset or all of the stormwater program in achieving a specific environmental outcome. Examples of an outcome include: reopening an area to commercial shellfish harvesting; preventing recontamination of receiving water

1 sediments; reducing discharge of certain pollutants by a targeted percentage, below a
2 certain concentration, or below a targeted annual load amount; re-establishment of a
3 sustaining native fish population.

4
5 In both the “actions” and “outcomes” categories, permittees are required to select an issue
6 for study that has significance for them.

7 8 C. Treatment and Hydrologic Best Management Practices Monitoring

9 10 Treatment Monitoring:

11 On a smaller scale, we also need to determine the effectiveness of specific treatment
12 BMPs in reducing pollutant discharges, and the effectiveness of various “low impact
13 development” (LID) practices in reducing the quantity of stormwater runoff.

14
15 The state and local stormwater manuals include lists of treatment BMP’s that are to be
16 applied in new development and re-development projects. Though most of these
17 treatment types have been recommended and in common use for many years, we have
18 only incomplete information about their pollutant removal capabilities. We have some
19 confidence that they are based on sound engineering concepts, but we do not know how
20 well they perform in relation to one another. Without a feedback loop of performance,
21 we cannot confirm which BMP’s perform best for certain pollutants. This also makes it
22 difficult to estimate pollutant loadings that are necessary to implement TMDL’s.
23 Without the feedback loop, we haven’t a good basis for altering design criteria in order to
24 improve their performance.

25
26 Not many studies have been done in the maritime Pacific Northwest Climate on facilities
27 that have been constructed using design criteria in the stormwater manuals. General
28 performance information on categories of treatment BMP’s (e.g., wet ponds, dry ponds,
29 biofiltration swales) from data collected around the country are available. But the
30 collectors of that data acknowledge its limited usefulness because of the broad range of
31 designs, including design criteria, used around the country; and because of regional
32 variations in rainfall patterns and soil types. We are overdue to perform studies to firm-
33 up our knowledge of the capabilities and limitations of the “best management practices”
34 that we have been using to reduce the pollutant impacts of our developments.

35
36 The permit proposes that each Phase I permittee select 2 treatment types, that are
37 standard technologies in their manuals, for detailed performance monitoring. With the
38 six Phase I permittees covered by this permit, Ecology hopes to get useful performance
39 information on twelve different BMP types. If necessary, Ecology will work with the
40 permittees to coordinate monitoring to avoid duplication and so that the widest range of
41 BMP types can be assessed.

42
43 The statistical goal for treatment BMP effectiveness monitoring is to determine mean
44 effluent concentrations and mean percent removals with 95% confidence and 80% power.
45 Those are the goals in the “Technology Assessment Protocol – Ecology” (TAPE). They
46 are commonly used statistical goals. Based on expected coefficients of variation for

1 stormwater pollutant parameters, it is likely that these statistical goals can be reached
2 with between 12 to 35 sample pairs. However, in the event of a large coefficient of
3 variation, a maximum of 35 sample pairs will suffice, and the confidence and power will
4 be identified. The cost estimation for this effort in Appendix C to this Fact Sheet
5 assumed 28 sample pairs would be necessary for all parameters of interest.

6
7 The influent particle size distribution can have a significant effect on the pollutant
8 removal performance of treatment BMP's. Prior to, or early in the sampling effort at a
9 particular treatment BMP site, the influent particle distribution will be analyzed to see if
10 it falls within a range that is typical for the BMP's application and meets the
11 requirements of the TAPE.

12
13 Permittees shall prepare Quality Assurance Project Plans (QAPP's) consistent with
14 Ecology guidance (Publication #04-03-030) and shall use appropriate sections of
15 "Guidance for Evaluating Emerging Stormwater Treatment Technologies" (Publication
16 Number 02-10-037) - or its updated version if published before the issuance date of this
17 permit – including the "Technology Assessment Protocol-Ecology (TAPE) for preparing,
18 implementing, and reporting on the results of the BMP evaluation program. Because
19 these are significant monitoring efforts with significant costs, it is advisable that QAPP's
20 be reviewed and approved before being implemented. This should help reduce time and
21 cost wasted on monitoring activities that won't be accepted or prove useful. Ecology is
22 exploring alternatives to "discrete flow composite sampling," as described in the TAPE,
23 for treatment BMP's that involve long residence times. Ecology will share those
24 alternatives and gain input from the permittees and other interested parties before
25 publishing an update to Publication Number 02-10-037.

26
27 Ecology is also proposing that permittees collect additional data, consistent with the
28 recommendations in the "National Stormwater BMP Data Base Requirements." Addition
29 of that data may help the national data base improve to the point that it can provide
30 constructive observations and recommendations to modify our designs, goals, monitoring
31 methods, etc.

32
33 Ecology has developed a cost estimate of the field and laboratory work that will be
34 necessary to meet this monitoring requirement. As noted above, an assumption of 28
35 paired samples was used to make this estimate. The estimate assumed only 1 paired
36 sample per captured runoff event. For short detention, flow-rate based BMP's, it is
37 possible to get more than 1 sample pair per event.

38 39 Hydrology Monitoring:

40 There is new interest in using various low impact development practices for new
41 developments and for retrofitting into existing developments. We need to establish a
42 feedback loop for documenting designs that have promise for long-term functionality,
43 and for documenting the extent to which they can reduce surface water runoff volumes
44 and flow rates. There are not commonly accepted field monitoring protocols for
45 measuring LID project functionality and effectiveness. Seattle has a surface water
46 monitoring effort for its Broadview/Green Grid project and a surface and groundwater

1 monitoring effort for its High Point project. The Washington State University
2 Cooperative Extension Office in Tacoma is monitoring surface and groundwater flows at
3 a site near the Pierce/King County line.

4
5 A one-size fits all monitoring protocol doesn't seem a likely approach. So, Ecology is
6 open to suggestions in this draft for minimum field and statistical requirements for
7 hydrologic monitoring. Possibilities include: paired monitoring of flow from adjacent
8 sites; one with an LID feature and one without. Paired monitoring of adjacent
9 subdivision sites; one with multiple LID features and one without. Monitoring the
10 surface runoff from a developed area before and after retrofitting an LID feature. In all
11 cases, it is likely that a long-term monitoring station is necessary in order to record flows
12 and water surface elevations over an extended range of precipitation and soil moisture
13 conditions. Monitoring results may be used to improve the methods by which LID
14 features are represented in predictive runoff models for determining treatment and flow
15 control needs.

16 Collaboration and Multi-purpose Monitoring Sites:

17 Ecology will allow municipalities to collaborate on monitoring. Different types of
18 collaboration are possible. It could involve hiring the same third party to perform some
19 part or all of the monitoring efforts. It could entail sharing staff and equipment,
20 laboratory facilities or contracts, or monitoring sites. Ecology is also open to the
21 possibility of coordinating meetings of the permittees to reach agreement on monitoring
22 details that will affect everyone's effort.

23
24
25 A permittee may also seek to identify a monitoring site that can be used to meet more
26 than one permit requirement. For instance, it may be possible to identify an influent
27 monitoring station for a treatment BMP that could also double as a site for monitoring
28 stormwater quality. The sampling protocol would have to be reviewed to assure both
29 monitoring requirements are met.

30 Monitoring Program Reporting Requirements

31 This permit requires an annual report of monitoring data collected during the previous
32 year. The permit specifies the data to be reported for each section of the monitoring
33 program. The federal stormwater rules at 40 CFR 122.42(c) require an annual summary
34 of monitoring data, and identification of water quality improvements or degradation. In
35 addition, Ecology has requested a description of any other stormwater monitoring
36 programs. This information is needed to stay aware of all available information about
37 stormwater in the watershed

38 S9 – Reporting Requirements

39
40
41 A. The federal stormwater rules at 40 CFR 122.42(c) require municipal stormwater
42 permittees to submit an annual report. Ecology included the annual reporting
43 requirement in these permits, and modifications were made to clarify what is
44 requested from permittees and to make the reporting requirements consistent with
45 other provisions in the permits.

- 1 B. The items for inclusion in the annual report have been modified from the federal
2 requirements for the following reasons:
3
- 4 - Additional clarification is provided on what is to be included in the portion
5 of the report on the status of implementing the components of the
6 stormwater management program. Compliance with the performance
7 standards must be addressed.
8
 - 9 - The portion of the report on annexations and incorporation has been added
10 by Ecology. Major annexations and incorporation could have an impact
11 on stormwater management program implementation if large areas are
12 taken out of the municipal stormwater permit program. Ecology believes
13 it is reasonable to be notified of these types of changes in the permit
14 coverage area.
15
 - 16 - The EPA rules require reporting on annual expenditures. Ecology has
17 provided clarification on what kind of information is required in the
18 portion of the report on annual expenditures. The instructions for the
19 reporting form include clarification on the tracking and reporting of
20 expenditures.
21
 - 22 - The requirements for a summary of enforcement actions and identification
23 of water quality improvements or degradation are drawn from the federal
24 rules.
25
 - 26 - The federal requirement for information on revisions to the assessment of
27 controls has been deleted from the annual report. The purpose of the
28 federal requirement is to predict the effectiveness of Stormwater
29 Management Plans in reducing pollutants discharged. Except for
30 qualitative observations, it is not possible to estimate pollutant reductions
31 annually without extensive monitoring of discharges. Ecology prefers the
32 broader monitoring program outlined in S8 to estimate concentrations and
33 loads from representative areas or basins, evaluate management actions
34 and evaluate the effectiveness of selected Best Management Practices.
35
 - 36 - Ecology has retained the EPA requirements to provide a summary of
37 monitoring data as a separate monitoring report under Special Condition
38 S8. In addition, Ecology has requested a description of any other
39 stormwater monitoring programs. We need this information to stay aware
40 of all available information about stormwater in the watershed.
41
- 42 C. To reduce the administrative burden for Ecology and permittees, Ecology has
43 developed a standardized reporting form for all permittees. Ecology does not
44 want the annual reporting requirement to unnecessarily take resources away from
45 program implementation. Also, Ecology does not have staff resources to respond
46 to voluminous annual reports. However, it is necessary to have enough

information to evaluate compliance with permit requirements and prepare the next permit.

General Conditions:

General Conditions are based directly on state and federal law and regulations have been standardized for all municipal stormwater NPDES permits issued by the Department.

- G1. Prohibits discharges that violate terms and conditions of this Permit.
- G2. Requires the Permittee to operate and maintain all stormwater pollution control facilities and system with terms and condition of this Permit.
- G3. Requires the Permittee notify Ecology immediately of all spills that may threat human health and environment within no later than 24 hours. In addition, spills that may cause bacterial contamination of shell fish must also reported to the State, Department of Health shellfish program.
- G4. This Permit prohibits bypass unless certain conditions exist in accordance with 40 CFR 122.41(m).
- G5. Requires the Permittee to allow Ecology to access the facilities and conduct inspections of the facilities and records related to this Permit in accordance with 40 CFR 122.41(i), Chapter 90.48.090 RCW, and WAC 173-220-150(1)(e).
- G6. For discharges with reasonable likelihood of adversely affecting human health or the environment, this Permit requires the Permittee to take all reasonable steps to minimize or prevent any discharge in violation of this Permit.
- G7. Specifies that the Permit does not convey property rights in accordance with 40 CFR 122.41(g).
- G8. Prohibits the Permittee from using the Permit as a basis for violating any laws, statutes or regulations in accordance with 40 CFR 122.5(c).
- G9. This Permit contains certain sets of monitoring requirements to insure compliance. The monitoring shall be based on representative samples of the discharge that must also include the actual flow. The samples shall be tested by an accredited laboratory based on certain pre-prescribed procedures and the results shall be retained by the Permittee for five years, or longer in case of enforcement or other litigations.
- G10. Prohibits the reintroduction of removed substances back into the storm sewer system or to waters of the state in accordance with 40 CFR 125.3(g), Chapter 90.48.010 RCW, Chapter 90.48.080 RCW, WAC 173-220-130, and WAC 173-201A-040.
- G11. Invokes severability of permit provisions in accordance with Chapter 90.48.904 RCW.
- G12. Identifies conditions for revoking coverage under the general permit in accordance with 40 CFR 122.62, 40 CFR 124.5, WAC 173-226-240, WAC 173-220-150(1)(d), and WAC 173-220-190.
- G13. Identifies the requirements for transfer of permit coverage in accordance with 40 CFR 122.41(l)(3) and WAC 173-220-200.

- 1 G14. Identifies conditions for revoking coverage under the general permit in
2 accordance with 40 CFR 122.62, 40 CFR 124.5, WAC 173-226-240, WAC 173-
3 220-150(1)(d), and WAC 173-220-190.
- 4 G15. Requires the Permittee to notify Ecology when facility changes may require
5 modification or revocation of permit coverage in accordance with 40 CFR
6 122.62(a), 40 CFR 122.41(l), WAC 173-220-150(1)(b), and WAC 173-201A-
7 060(5)(b).
- 8 G16. Defines appeal options for the terms and conditions of the general permit and of
9 coverage under the Permit by an individual discharger in accordance with Chapter
10 43.21B RCW and WAC 173-226-190.
- 11 G17. Any person who is found guilty of willfully violating the terms and conditions of
12 this Permit shall be deemed guilty of a crime, and upon conviction thereof shall
13 be punished by a fine of up to ten thousand dollars (\$10,000) and costs of
14 prosecution, or by imprisonment in the discretion of the court. Each day upon
15 which a willful violation occurs may be deemed a separate and additional
16 violation. Any person who violates the terms and conditions of a waste discharge
17 permit shall incur, in addition to any other penalty as provided by law, a civil
18 penalty in the amount of up to ten thousand dollars (\$10,000) for every such
19 violation. Each and every such violation shall be a separate and distinct offense,
20 and in case of a continuing violation, every day's continuance shall be deemed to
21 be a separate and distinct violation. Describes the penalties for violating permit
22 conditions in accordance with 40 CFR 122.41(a)(2).
- 23 G18. Requires the Permittee to reapply for coverage 180 prior to the expiration date of
24 this General Permit in accordance with 40 CFR 122.21(d), 40 CFR 122.41(b), and
25 WAC 183-220-180(2). An expired permit continues in force and effect until a
26 new permit is issued or until Ecology cancels the Permit. Only Permittees who
27 have reapplied for coverage under this Permit are covered under the continued
28 permit. This section is derived from Chapter 90.48.170 RCW.
- 29 G19. Requires responsible officials or their designated representatives to sign
30 submittals to Ecology in accordance with 40 CFR 122.22, 40 CFR 122.22(d),
31 WAC 173-220-210(3)(b), and WAC 173-220-040(5).
- 32 G20. Requires the Permittee to retain records of all monitoring information for a
33 minimum of five years. Such information shall include all calibration and
34 maintenance records. This period of retention shall be extended during the course
35 of any unresolved litigation regarding the discharge of pollutants by the Permittee
36 or when requested by Ecology.
- 37 G21. Requires the permittee to notify Ecology in the event that the permittee is unable
38 to comply with the permit or is out of compliance with the permit.

Appendix B. List of Applicable TMDLs in Western Washington

Waterbody	Parameter	Approval Date	Affected MS4 Permittees
Snohomish River Estuary	Ammonia	3-Feb-00	Snohomish County, Granite Falls, Lake Stevens, Monroe, Snohomish, Marysville, Arlington, Everett, WSDOT
	BOD		
-	Fecal Coliform	9-Aug-01	Snohomish County, Granite Falls, Lake Stevens, Monroe, Snohomish, Marysville, Arlington, Everett, WSDOT
Snohomish River Tributaries			
* Allen Creek			
* Quilceda Creek			
* French Creek			
* Woods Creek			
* Pilchuck River			
* Pilchuck River			
* Marshlands (Wood Creek) {2}			
Snoqualmie River	Ammonia-N	3-Jul-96	King County, Snohomish County, Duvall, Monroe, Sammamish, WSDOT
	BOD (5-day)		
	Fecal Coliform		
Issaquah Creek Basin	Fecal Coliform	1-Oct-04	Issaquah, King County, and WSDOT
Pipers Creek	Fecal Coliform	8-Apr-93	Seattle, WSDOT
North Creek	Fecal Coliform	2-Aug-02	Everett, Bothell, Snohomish County, Mill Creek, WSDOT
Sawyer Lake	Total Phosphorus	12-Feb-93	Black Diamond, King County, WSDOT

Puyallup River	Ammonia-N	9-Nov-94	Enumclaw, Buckley, Pierce County, Tacoma
	BOD (5-day)		
South Prairie Creek	Fecal Coliform	6-Aug-03	Pierce County, WSDOT
Wapato Lake	Total Phosphorus	8-Apr-93	Tacoma
Salmon Creek	Fecal Coliform	05 April 01	Vancouver, Clark County, WSDOT
Salmon Creek	Turbidity		Vancouver, Clark County, WSDOT
Gibbons Creek	Fecal Coliform	09-Aug-00	Clark County, Washougal, WSDOT
Weaver Creek	BOD and Ammonia-Nitrogen	9-Mar-93	Clark County, Battleground

Appendix C - Monitoring Program Cost Estimate

NPDES Phase I - BMP Evaluation Monitoring

Estimated Equipment Purchase and Yearly Permit Sampling

Field Equipment and Expenses

	City/County			Port		
Whole Storm Water Samples	Qty	Cost	Total Cost	Qty	Cost	Total Cost
ISCO - 6712 Composite Sampler (2 BMPS and influent/effluent/site)	8	2,795.00	22,360.00	4	2,795.00	11,180.00
Automated Flow Module - Bubble730	8	1,845.00	14,760.00	2	1,845.00	3,690.00
Rechargeable Battery	8	50.00	400.00	4	50.00	200.00
Hose	96 feet	2.00/ft	192.00	48 feet	2.00/ft	24.00
Collection Jars - 1 Liter (12/sampler)	96	2.00	192.00	48	2.00	96.00
Strainer	8	45.00	360.00	4	45.00	180.00
Mounting equipment	8	300.00	2,400.00	4	300.00	1,200.00
ISCO FlowLink5 Software	1	1,000.00	1,000.00	1	1,000.00	1,000.00
Data Transfer Unit (DTU)	1	1,000.00	1,000.00	1	1,000.00	1,000.00
Lab Bottles/Jars/Lids for chemical analyses			800.00			400.00
Subtotal Composite SW field equipment			\$ 43,464.00			\$ 18,970.00

Personnel (confined space entry requires 2 people)						
Composite sampling setup and recovery - 4 hrs/sampling event (28x/year)	2 employees	\$35/hr	7,840.00	2 employees	\$35/hr	7,840.00
Sediment trap setup and recovery - 2 hrs (2x/year)	2 employees	\$35/hr	280.00	2 employee	\$35/hr	280.00
<i>subtotal wages</i>			8,120.00			8,120.00
increase by factor of 50% for false starts/storm criteria not met			4,060.00			4,060.00
Gloves (nitrile) -1box	1 box		26.00	1 box		26.00
Subtotal Personnel			\$ 12,206.00			\$ 12,206.00

Appendix C - Monitoring Program Cost Estimate

NPDES Phase I - BMP Evaluation Monitoring

Estimated Equipment Purchase and Yearly Permit Sampling

Lab Analysis

All prices listed are for planned discounted (MEL) analyses.

Prices for samples received without proper planning/notice are doubled.

Whole Water Samples				City/County		Port	
General Chemistry	Qty	Cost	Total Cost	Qty	Cost	Total Cost	
TSS	224	10.00	2,240.00	112	10.00	1,120.00	
Particle Size Distribution (PSD - 4/yr)	16	350.00	5,600.00	8	350.00	2,800.00	
Hardness	112	20.00	2,240.00	56	20.00	1,120.00	
pH	224	10.00	2,240.00	112	10.00	1,120.00	
Total Phosphorus	224	25.00	5,600.00	112	25.00	2,800.00	
Orthophosphate	224	14.00	3,136.00	112	14.00	1,568.00	
Metals Chemistry							
Total metals (Cu, Zn)	224	58.00	12,992.00	112	58.00	6,496.00	
Dissolved metals (Cu, Zn)	224	58.00	12,992.00	112	58.00	6,496.00	
Lab/Field QA/QC (additional 20% for metals and organics)			5,196.80			2,598.40	
subtotal Whole Water Samples			\$ 52,236.80				\$ 26,118.40

Appendix C - Monitoring Program Cost Estimate

NPDES Phase I - BMP Evaluation Monitoring Estimated Equipment Purchase and Yearly Permit Sampling

Lab Analysis

All prices listed are for planned discounted (MEL) analyses.

Prices for samples received without proper planning/notice are doubled.

Sediment Samples

	City/County			Port		
General Chemistry (2 samples/site +1 QA/QC)	Qty	Cost	Total Cost	Qty	Cost	Total Cost
Percent Solids	9	10.00	90.00	5	10.00	50.00
Particle Size Distribution (PSD - 4/yr)	9	350.00	3,150.00	5	100.00	500.00
Total Volatile Solids (TVS)	9	21.00	189.00	5	21.00	105.00
Total Phosphorus	9	25.00	225.00	5	25.00	125.00

Metals Chemistry

Total metals (Cd, Cu, Pb, Zn)	8	104.00	832.00	4	104.00	416.00
-------------------------------	---	--------	--------	---	--------	--------

Organic Chemistry

TPH - Diesel (NWTPH-Dx)	8	135.00	1,080.00	4	135.00	540.00
Lab/Field QA/QC (additional 20% for metals and organics)			382.40			191.20

subtotal Sediment Samples

\$ 5,948.40

\$ 1,927.20

Estimated Costs (1 time equipment purchase & Year 1 sampling)

	City/County	Port
<i>Field Equipment</i>	43,464.00	18,970.00
<i>Personnel</i>	12,206.00	12,206.00
<i>Whole Water Lab Analyses</i>	52,236.80	26,118.40
<i>Sediment Sample Analyses</i>	<u>5,948.40</u>	<u>1,927.20</u>
Total Estimated 1st Year Costs	<u>\$ 113,855.20</u>	<u>\$ 59,221.60</u>